Chem.

The BULLETIN

American Society of Hospital Pharmacists

SODIUM LEVO-THYROXINE
in hypothyroidism

PHARMACEUTICAL SERVICE
at the Clinical Center of the N.I.H.

DEVELOPMENT OF A FORMULARY
in a small open staff hospital

Rx VOLUME 9 NUMBER 1 JANUARY—FEBRUARY 1952

PAVERIL PHOSPHATE

(DIOXYLINE PHOSPHATE, LILLY)

for smooth-muscle relaxation

'Paveril Phosphate' is a newly developed synthetic compound which is similar in chemical structure to papaverine. 'Paveril Phosphate' is not a narcotic, however, and it is therapeutically superior to papaverine because of its wider margin of safety. 'Paveril Phosphate' is indicated for relaxation of smooth-muscle spasm. It is especially useful in relieving vascular spasm associated with angina pectoris, coronary occlusion, and peripheral or pulmonary embolism. Lilly medical service representatives are now detailing 'Paveril Phosphate' to physicians everywhere. Obtain adequate stock through your near-by service wholesale distributor. Available in 1½-grain (0.1-Gm.) tablets (No. 1781) and 3-grain (0.2-Gm.) tablets (No. 1782) in packages of 100, 500, and 1,000.

Lilly

WE PAY HIM · BUT HE WORKS FOR YOU

ELI LILLY AND COMPANY

Indianapolis 6, Indiana, U.S.A.

The BULLETIN
American Society of Hospital Pharmacists

JANUARY-FEBRUARY 1952
VOLUME 9 NUMBER 1

MEMBERSHIP in the American Society of Hospital Pharmacists and the American Pharmaceutical Association is open to all practicing Hospital Pharmacists. With membership is included subscriptions to THE BULLETIN of the American Society of Hospital Pharmacists and to the two *Journals* of the American Pharmaceutical Association, as well as the several services of both organizations.

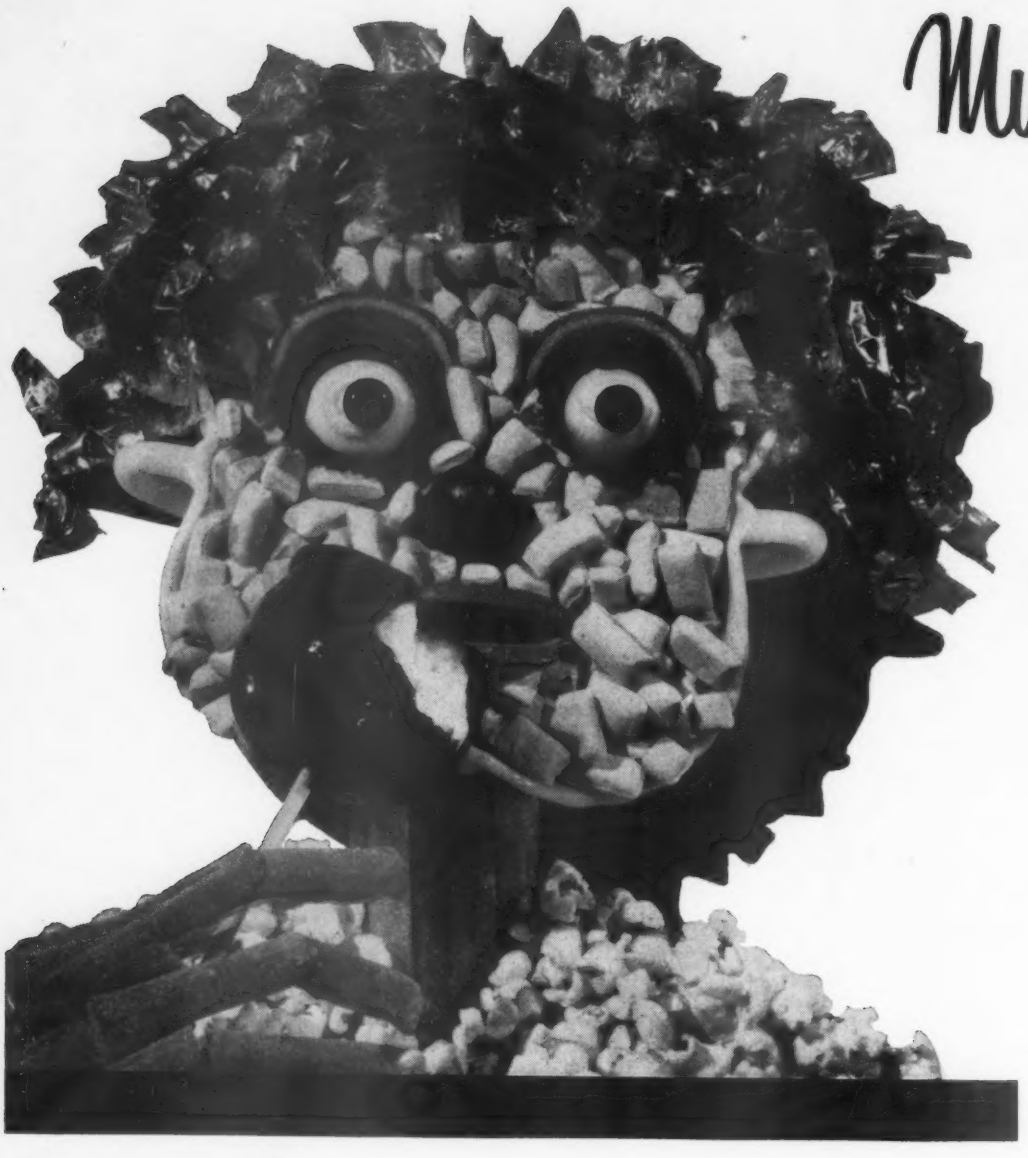
ADVERTISING is accepted from those firms currently advertising in the *Journals* of the American Pharmaceutical Association. In addition, advertising for special equipment and material will be accepted. Inquiries should be sent to the Division of Hospital Pharmacy, American Pharmaceutical Association, 2215 Constitution Ave., N.W., Washington 7, D.C.

SUBSCRIPTION RATE: In the U.S. $4.50 per year (six issues), single copies 75 cents; Foreign $5 per year, single copies 85 cents. CHANGES OF ADDRESS should be directed to the Division of Hospital Pharmacy, American Pharmaceutical Association, 2215 Constitution Ave. N.W., Washington 7, D.C.

The American Society of Hospital Pharmacists, an affiliate of the American Pharmaceutical Association, is a national organization devoted to the profession of hospital pharmacy and dedicated to the interests of the hospital pharmacist.

IN THIS ISSUE

THE BULLETIN is published bimonthly at Hamilton, Illinois, by the American Society of Hospital Pharmacists in cooperation with the Division of Hospital Pharmacy of the American Pharmaceutical Association. Editorial office at 1313 East Ann Street, Ann Arbor, Michigan. Entered as second class matter July 19, 1951 at the post office at Hamilton, Illinois. CONTRIBUTIONS will be accepted if they are of general interest to those in hospital pharmacy. The editors reserve the right to revise all material submitted, if necessary. The American Society of Hospital Pharmacists and the American Pharmaceutical Association assume no responsibility for the statements and opinions advanced by contributors to THE BULLETIN. Views expressed in the editorials are those of the editor and do not necessarily represent the official position of either the American Society of Hospital Pharmacists or the American Pharmaceutical Association.



Munchin
Maud
is
Vitamin
Fraud

Dayalets®

(Abbott's Multiple Vitamins)

NO FISH-OIL
TASTE OR BURP

Each DAYALET Tablet contains:

→ Vitamin A	10,000 U.S.P. units (synthetic vitamin A palmitate)
Vitamin D	1000 U.S.P. units (Viosterol)
Thiamine Mononitrate	5 mg.
Riboflavin	5 mg.
Nicotinamide	25 mg.
Pyridoxine Hydrochloride	1.5 mg.
→ Vitamin B_{12}	1 mcg. (as vitamin B_{12} concentrate)
Pantothenic Acid	5 mg. (as calcium pantothenate)
Ascorbic Acid	100 mg.

HERS is a case of *between-mealitis* which spoils her appetite for more balanced fare. For Maude and other subclinical deficients, the road back to vitamin balance often combines dietary reform with DAYALETS—the fishless, burpless multivitamin tablet containing nine important vitamins.

There's no fish oil in DAYALETS because the vitamin A is synthetic. No fish-oil taste, burp or odor, no allergies due to fish oils. DAYALETS can't leak, won't stick together in the bottle. One daily as a supplement, two or more for therapeutic use. In bottles of 50, 100 and 250 tablets.

Abbott

LETTERS

Chlorophyll Patent

DEAR *SIRS*: We have read in the September-October, 1951 issue of THE BULLETIN, American Society of Hospital Pharmacists, the article "Chlorophyll, Its Medicinal and Pharmaceutical Applications" by Glen J. Sperandio, Assistant Professor of Pharmacy, Purdue University, Lafayette, Indiana.

We were immediately interested and concerned about this article because our company, as the manufacturer of the ethically promoted therapeutic chlorophyll preparations under our trademark, Chloresium, owns various United States and foreign patents providing protection on chlorophyll compositions containing water soluble derivatives of chlorophyll including the derivatives described under "Pharmacy" in the article. Specifically, our U.S. Patent No. 2,120,667 covers ointment and solution compositions similar in characteristics and specifications to the preparations described in the article and the formulas presented for chlorophyll ointment and chlorophyll suppositories

We also note that in the clinical reports shown in Table I and in the references that the evidence re the therapeutic value of chlorophyll consists almost entirely of clinical reports and papers published on work done with our Chloresium preparations. Specifically, references 1, 5, 6, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 37, 39 (duplicate of 33) are from the bibliography of Chloresium chlorophyll studies.

The article does not report that a patent position exists and directly informs pharmacists how to make chlorophyll compositions which infringe our patent. Furthermore, the article does not report that the Council on Pharmacy and Chemistry of the A.M.A. has accepted Chloresium Ointment and Chloresium Solution (Plain) and that there has been established an NNR specification. This NNR specification and the acceptance of Chloresium was reported in the Journal of the A.M.A. May 5, 1951. The article also fails to give any credit line to Chloresium or Rystan as the source of most of the clinical data.

In this connection we would also direct attention to the fact that the chlorophyll derivatives described in the article under the section "Pharmacy", while covered by our patent, are not of purity and concentration specified for chlorophyll ointment and solution in the NNR and, therefore, are not of the purity and standards incorporated in our Chloresium products.

We presume that the author, Professor Sperandio, may not have known the facts given above. However, we feel that your article has unintentionally but actually created a situation which can damage our company considerably and can conceivably cause hospital pharmacists and others to think they can manufacture these chlorophyll preparations without violating our patent.

We, therefore, request that you publish in the next issue a statement which will clarify this situation, bringing out the fact that these chlorophyll compositions are patented and that Rystan provides the only NNR accepted chlorophyll products and that Rystan investigators were the source of the principal clinical data described in the article. Or, if you wish, you may publish this letter.

We are deeply concerned but feel that you can correct this situation by taking the action we have suggested. We trust we can count on your prompt and full cooperation.

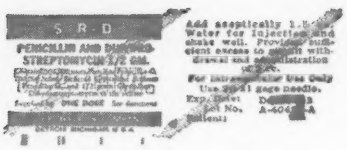
O'NEILL RYAN, JR., *President*
Rystan Company, Inc.
7 N. MacQuesten Pkwy.,
Mount Vernon, N.Y.

Author's Statement

DEAR SIRS: I have received a copy of the letter written you December 20 by Mr. O'Neill Ryan, Jr., President of the Rystan Company, concerning my article on chlorophyll in the last issue of THE BULLETIN, and would like to give you my views on the matter.

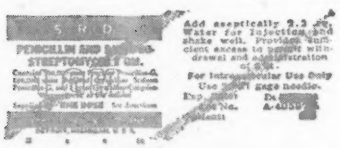
The article was primarily a review article, and emphasis was placed on chlorophyll itself as a therapeutic agent rather than on any trade-named preparations containing chlorophyll. The original references with the complete titles for the clinical reports shown in Table 1 are all listed properly at the end of the article, and anyone desiring to read them can see the authors' references to Chloresium or any other trade-marked product used in the clinical trials. I was under the impression that once an article was published, it was permissible to use it as a reference, and I can assure you that all of the references used were already checked and I made every effort to credit the proper

(Continued on Page 25)



when they want

penicillin or penicillin with dihydrostreptomycin



physicians will now ask for

S-R* or S-R-D*

(Parke-Davis procaine penicillin and buffered crystalline penicillin for aqueous injection)

(Parke-Davis penicillin and dihydrostreptomycin)

Physicians will ask for S-R because they know this well established combination of soluble and repository penicillin provides the early, high and prolonged blood levels they need for maximum therapeutic efficacy. And when they want a broader bacterial spectrum, they'll order S-R-D (penicillin and dihydrostreptomycin).

Intensive, sustained promotion is helping to make S-R and S-R-D important business in pharmacies throughout the country.

PARKE, DAVIS & COMPANY

EDITORIAL

Role of Hospital Pharmacy in Pharmaceutical Education

by DON E. FRANCKE

Hospital pharmacy has a larger role in pharmaceutical education than the training of hospital pharmacists. It also has a well defined place in the undergraduate training of senior students in compounding, dispensing, and manufacturing. The relatively high volume of pharmaceuticals prepared in hospital pharmacies makes them an ideal unit with which to establish such an arrangement. More and more are the colleges of pharmacy coming to recognize the potentialities of the hospital pharmacy for undergraduate training and taking steps to establish an affiliation between the college and the hospital.

There are tremendous advantages for the student in the actual practice of compounding, dispensing, and manufacturing of pharmaceuticals in a hospital environment and in a situation where they know that the products prepared are going to be used by patients. Needless to say it is highly important that the students be supervised with vigilance and that nothing leave the Pharmacy until it has been thoroughly checked. However, this method of instruction gives the student experience and responsibility which cannot be obtained in regular classroom or laboratory work.

The widespread adoption of college-hospital collaboration would serve to implement several important recommendations of the Pharmaceutical Survey. The Survey, after examining the evidence and stating the problem regarding the pharmaceutical curriculum made, among others, the following recommendations:

"It is recommended that the objectives of the undergraduate program for the education and professional preparation of pharmacists include:

1. "Preparing students to procure, develop, prepare, preserve, standardize, test, and dispense substances and articles used in the diagnosis, treatment, and prevention of disease.
2. "Qualifying students to cooperate with members of the other health professions and to consult with them; to furnish accurate, objective, and scientific information to physicians and members of other health professions concerning drugs and their action.
3. "Preparing students to provide professional services to the public appropriate to the basic functions of pharmacy in its role as a health profession."

Colleges of pharmacy can achieve these objectives particularly by establishing a coodinated program with hospital pharmacies.

The opportunity for fuller participation by hospital pharmacy in pharmaceutical education carries with it many responsibilities. One of these is the responsibility to provide an increasing number of hospital pharmacists with graduate training so that they will be better prepared to function in a college-hospital collaboration program. Considerable progress is being made in this direction and some of our colleges in cooperation with associated hospitals are now turning out a fair number of graduate students with a specialized hospital pharmacy background.

Another responsibility inherent in this program is not to sacrifice patient service functions for teaching functions. In other words the prime function of all hospital departments always should be that of serving the patient. To attain the objectives of this program, the patient service functions and the teaching functions must be coordinated in such a manner that a successful teaching program can be carried out without adversely affecting patient service. Any attempt at broad-scale instruction of senior students in a hospital pharmacy greatly complicates the operation of the Department of Pharmacy and throws additional heavy responsibilities upon the chief pharmacist and his staff. This is true even though the college provides, as it should, one or more members of the faculty for the direct supervision of students. For this reason particularly, the chief pharmacist should hold academic rank, be directly responsible to the dean of the college for all teaching functions carried out in the hospital pharmacy, and any faculty member assigned by the college for direct supervision and instruction of students should be responsible to the chief pharmacist, and through him to the dean, when instructing in the Department of Pharmacy of a hospital. This pattern of organization obviates dual responsibilities for those working in the Department of Pharmacy, whether they are assigned to teaching functions or to service functions and is in keeping with established principles of organization.

Hospital pharmacy will undoubtedly play an increasing role in pharmaceutical education. It obviously offers many potentialities not readily available elsewhere.

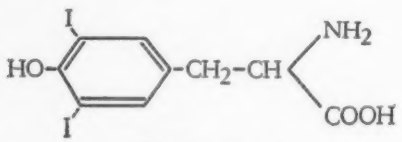
SODIUM *l*-THYROXINE

a new orai

The first successful treatment of hypothyroidism in humans was achieved by Murray in 1891 by subcutaneous injection of sheep's thyroid. Oral administration of whole thyroid was first found to be equally effective by Mackenzie and Fox in 1892. The existence of a thyroid hormone was thus established and attempts at its isolation were begun.

STORY OF ITS SYNTHESIS

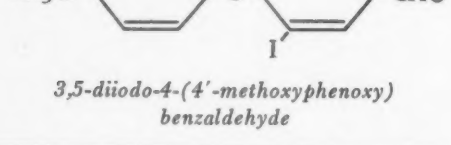
The period of acid hydrolysis. The first attempts to break up colloid of thyroid glands resulted in destruction of its physiological activity. Bauman (1896), in attempting to digest the gland with acid, discovered that the thyroid contained iodine. He subsequently obtained what he called "iodothyrin," a substance containing 10 percent of iodine, and showed that it was physiologically potent. Oswald (1911) isolated from the gland in pure chemical form the amino acid diiodotyrosine which has the structural formula:



Diiodotyrosine

This period in the history of the search for the hormone might be termed the period of acid hydrolysis. The period of alkaline hydrolysis followed.

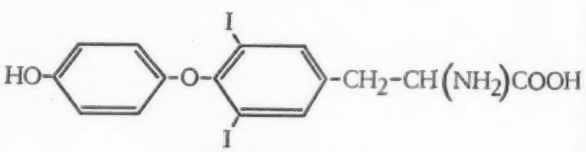
Alkaline hydrolysis. This procedure was early abandoned because it destroyed physiologic activity. Kendall (1915) revived it, however, and worked out a method which yielded a pure crystalline substance containing 60 percent of iodine and possessing full physiologic activity. He named it "thyroxin." Harington (1923) abandoned hydrolysis of thyroid to its simplest amino-acid constituents and approached the problem of *d*- and *l*-isomer activity through the path of synthesis. He first prepared 3,5-diiodo-4-(4′methoxyphenoxy) benzaldehyde which contains iodine atoms in the same positions as two of those in natural thyroxine.



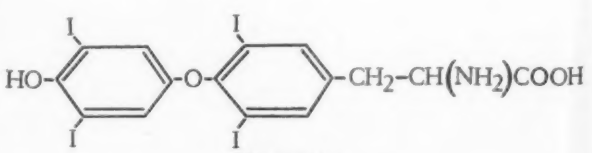
3,5-diiodo-4-(4′-methoxyphenoxy) benzaldehyde

WILLIAM H. BEIERWALTES, M.D., is an assistant professor of internal medicine in the University of Michigas Medical School.

The amino group was then attached to this compound by condensation with hippuric acid. The resulting compound was boiled with sodium hydroxide in alcohol and then with acetic anhydride and hydriodic acid. The product of these procedures, 3,5-diiodothyronine, when treated with a concentrated solution of iodine in potassium iodide, readily takes up two additional atoms of iodine with the formation of thyroxine.

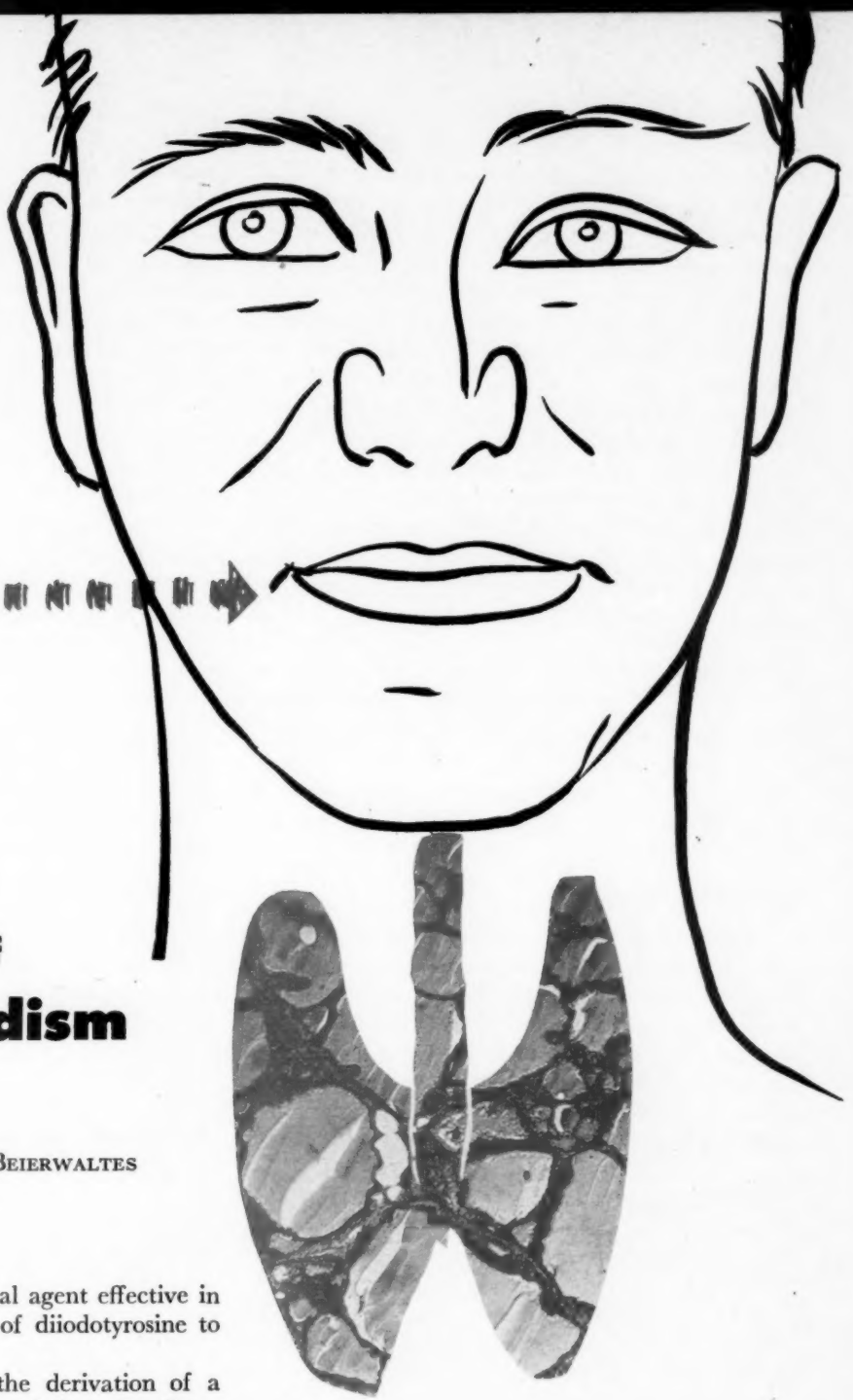


3,5-diiodothyronine



Thyroxine
3,5,3′,5′-tetraiodothyronine

In 1945 Harington and Pitt-Rivers found that increased yields of thyroxine could be obtained in a much shorter time with the aid of hydrogen peroxide. The effect of *p*H was similar to that observed on simple aerobic incubation. The conversion could also be accelerated by addition of iodine. They advanced reasons for believing that



effective in the treatment of

hypothyroidism

By WILLIAM H. BEIERWALTES

in all stages observed the actual agent effective in bringing about the oxidation of diiodotyrosine to thyroxine was free iodine.

These two basic steps in the derivation of a new method for preparation of *l*-thyroxine furnished Hems and Clayton the basis for formulating a commercial method of production of thyroxine patented by them, patent No. 652207, April 18, 1951, under the Glaxo Laboratories, Ltd., a British company in Greenford, Middlesex, England. These patent rights have since been purchased by the Smith, Kline, and French Co. in the United States.

PHYSIOLOGIC ACTIVITY

It was noted by Reed Hunt (1922) that whole thyroid was more active physiologically than thyroxine when comparison was based upon either total organic iodine or thyroxine iodine equivalence. Although thyroxine is known to be relatively insoluble and consequently irregularly absorbed from the gastrointestinal tract, this difference in activity was noted even when thyroxine was administered intravenously. Harington (1923) suggested that thyroxine might have been artificially racemised, in preparation, and that either the *d*- or *l*-isomer might be the active ingredient. In this case, the physiologic activity of the active isomer might be decreased by dilution with the relatively inactive isomer. He tested the *d*- and

l-thyroxine isomers, using as an index of their physiologic activity their ability to accelerate the metamorphosis of tadpoles. *L*-thyroxine was found to be about three times as active physiologically as the *d*- compound. Foster, Palmer, and Leland (1936) tested the effect of the two compounds on normal guinea pigs and found that *l*-thyroxine had twice the calorigenic effect of racemic thyroxine. This observation was confirmed by Reinke and Turner (1943), using carbon dioxide output and loss of body weight in guinea pigs as the criteria for response, and by Dempsey and Astwood (1943), using the maintenance or restoration of normal thyroid weight of rats simultaneously treated with antithyroid drugs.

ASSAY ON HUMANS

The activity of *l*-thyroxine was assayed in two cases of myxedema and that of *d*-thyroxine in four cases of myxedema by Pitt-Rivers and Lerman (1946-8). They concluded that, with intravenous injection, the ratio of activity between *d*- and *l*-thyroxine was about 1:8 or 1:10.

METABOLIC FATE

Keating and Albert (1949) administered one milligram doses of labeled thyroxine orally to subjects with myxedema. They found that thyroxine was absorbed more slowly than iodide, and that in 24 hours about 25 percent of the I^{131} present in administered thyroxine was excreted in the urine as iodide. Myant and Pochin (1950) gave physiological doses of labeled thyroxine orally and intravenously to normal humans. They also compared the metabolism of artifically synthesized radiothyroxine (Glaxo Co., sodium-*l*-thyroxine) and biosynthesized radiothyroxine, obtained from the serum of patients previously given radioactive iodine. They found that when radioactive sodium *l*-thyroxine was given intravenously to normals, radioiodide was continuously excreted in the urine and picked up by the thyroid. An average of 30 percent of the administered dose of I^{131} accumulated in these two sites in 24 hours. Ten percent of the radioiodine recovered from the urine was in thyroxine and the rest was free iodide. An additional 10 percent of the I^{131} appeared in the feces in three days. A relatively high external Geiger counting rate over the upper abdomen suggested that some radioiodine was concentrated in the liver before excretion into the gut via the bile. It was noteworthy that the accumulation of I^{131} in the thyroid, urine and feces and the composition of the plasma radioiodine were comparable whether sodium radiothyroxine was given orally or by vein. It seemed, therefore, that after an oral dose most of the thyroxine was absorbed as thyroxine from the gut. The slower metabolism of biosynthesized radiothyroxine after intravenous injection suggested that the natural circulating hormone was more stable in the body and less diffusible than sodium thyroxine. Gross and LeBlond (1951) injected biosynthesized radiothyroxine subcutaneously into six intact mice, three thyroidectomized mice and three intact rats. The radioactive substances subsequently appearing in the animals were detected by radioautography on paper chromatograms of tissues and excreta. The results were similar in intact and thyroidectomized animals. Plasma radioactivity was predominantly in the form of thyroxine, but there were also small amounts of iodide and of an unidentified substance located to the right of the thyroxine on the chromatogram paper and referred to as Compound No. 1. The kidney contained thyroxine, Compound No. 1, traces of iodide and an unknown compound referred to as No. 4, which was located to the middle left of the radioautographs and was particularly abundant in mice. The liver showed an intense thyroxine spot and moderate spots for iodide, Compound No. 1 and No. 4. Muscles and feces contained thyroxine. Compound No. 1, and small amounts of iodide, with the possibility of a faint spot corresponding to Compound No. 4. The urine differed by the absence of thyroxine and Compound No. 1, but iodide, the only substance identified with certainty, was present in large amounts. Forty-eight hours after injection of free radioiodide, the picture was more or less similar to that obtained after radiothyroxine administration. It was concluded, therefore, that the substances found after radiothyroxine injection were metabolites of thyroxine and were formed in the peripheral tissues.

STATUS IN TREATMENT OF HUMANS

Hart and MacLagen (1950) pointed out that formerly no one felt that thyroxine would replace desiccated thyroid because of its relatively high price and lack of availability. It was finally omitted from the British Pharmacopia. However, the development in 1949 by the Glaxo Co. of a better method for the commercial synthesis of the sodium salt of *l*-thyroxine indicated that the future of synthetic thyroxine might well be brought to compete with that of desiccated thyroid. These authors treated nine patients with well marked myxedema with sodium *l*-thyroxine by mouth for a total period of 18 months. They found no evidence of increased metabolism in less than 24 hours after a dose of this drug or desiccated thyroid. They, therefore, administered only one dose every 24

hours. They found the average maintenance dose of sodium l-thyroxine to be 0.2 mg. per day. This furnished 0.13 mg. of iodine. It is interesting that this iodine content of their average maintenance dose of thyroxine is about identical with the thyroxine iodine content in the well established average maintenance dose of desiccated thyroid (0.1 mg. of thyroxine iodine in each 100 mg. of desiccated thyroid). This would suggest that the sodium *l*-thyroxine is absorbed from the alimentary tract as completely as the active principle of desiccated thyroid.

The only advantage of sodium *l*-thyroxine seen by the authors in treatment of myxedema is that sodium *l*-thyroxine would not require any biological or chemical standardization and therefore could be used with equal confidence in any part of the world.

REFERENCES

1. Murray, G. R.: Note on the Treatment of Myxedema by Hypodermic Injections of an Extract of the Thyroid Gland of a Sheep, *Brit. M. J. 2*:796, 1891.
2. Mackenzie, H.W.G.: A Case of Myxoedema Treated With Great Benefit by Feeding With Fresh Thyroid Glands, *Brit. M. J. 2*:940, 1892.
3. Baumann, E.: Ueber das normale Vorkommen des Jods im Thierkorper. III. Der Jodegehalt der Schilddrusen von Menschen und Thieren, *Ztschr. f. Physiol. Chem. 22*: 1, 1896.
4. Oswald, A.: Gewinnung von 3,5 Dijodotyrosin aus jodeiweiss, *Ztschr. f. Physiol. Chem. 70*: 310, 1911.
5. Kendall, E. C.: The Isolation in Crystalline Form of the Compound Containing Iodine Which Occurs in the Thyroid; Its Chemical Nature and Physiological Activity, *Tr. A. Am. Physicians 30*: 420, 1915.
6. Harington, C. R.: 178 Resolution of *dl*-thyroxine, *Biochem. J. 22*: 1429, 1923.
7. Harington, C. R., and Pitt-Rivers, R. V.: The Chemical Conversion of Diiodotyrosine Into Thyroxine, *Biochem. J. 39*: 157, 1945.
8. Hunt, R.: The Acetonitril Test for Thyroid and of Some Alterations of Metabolism, *Am. J. Physiol. 63*:257, 1923.
9. Foter, G. L., Palmer, W. L., and Leland, J. D.: A Comparison of the Calorigenic Potencies of *l*-thyroxine, *dl*-thyroxine, and Thyroid Gland, *J. Biol. Chem. 115*:467, 1936.
10. Reinke, E. P., and Turner, C. W.: The Recovery of *l*-thyroxine From Iodinated Casein by Direct Hydrolysis With Acid, *J. Biol. Chem. 149*: 563, 1943.
11. Dempsey, E. W., and Astwood, E. B.: Determination of the Rate of Thyroid Hormone Secretion at Various Environmental Temperatures, *Endocrinology 32*: 509, 1943.
12. Pitt-Rivers, R., and Lerman, J.: The Physiological Activity of the Optically Active Isomers of Thyroxine, *J. Endocrinol. 5*: 223, 1946-8.
13. Keating, F. R., and Albert, A.: The Metabolism of Iodine in Man as Disclosed With the Use of Radioactive Iodine, *Recent Progr. Hormone Research 4*: 429, 1949
14. Myant, N. B., and Pochin, L.: Metabolism of Radiothyroxine in Man, *Clin. sci. 9*: 421, 1950.
15. Gross, J., and LeBlond, C. P.: Metabolites of Thyroxine, *Proc. Soc. Exper. Biol. and Med. 76*: 686, 1951.
16. Hart, F. D., and MacLagan, N. F.: Oral Thyroxine in Treatment of Myxedema, *Brit. M. J. 1*: 512, 1950.

Letters *(Continued from Page 19)*

sources for my information. I did not feel it necessary nor advisable to designate the authors of the clinical reports as "Rystan Investigators" since I had no means of knowing the men to be in the employ of that company. I believe that I have made the proper acknowledgements in the article and do not deem it necessary to credit any particular company since the original articles were published under the researchers' names.

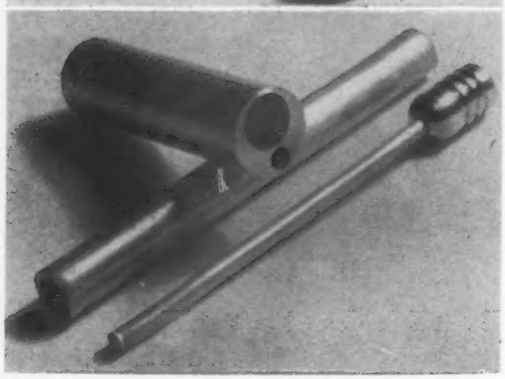
I did not mention by name any trade-marked product in the article since I wanted it to be impersonal; and, as I said earlier, the article is about chlorophyll itself and not any specific preparations. I could not have said that the Chloresium products were accepted by the NNR because I wrote the major part of the article last April, as you will perhaps recall, and at that time I did not know they were to be accepted in May.

As far as the patent on chlorophyll compositions containing water-soluble chlorophyll and its derivatives is concerned, I must admit that I did not know the extent of the patent, and I never once thought of infringing on any firm's rights. The formulas given were in no way intended to be considered as competition or substitutes for any existing preparations, and certainly nothing at all was said about their meeting NNR specifications or being similar to any patented products.

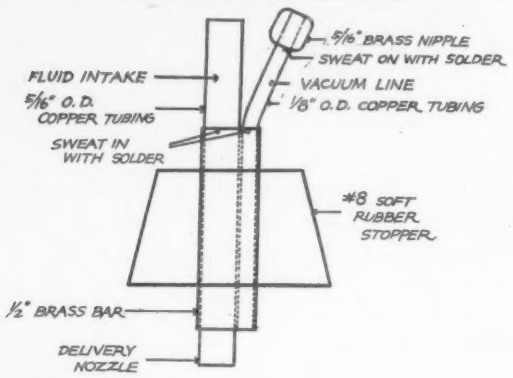
I can understand Mr. Ryan's feeling about his company's product, but I do not share his opinion that the article has created a situation which could cause damage to his firm; on the contrary, I should think that any publicity about chlorophyll, direct or indirect, would be beneficial to the Rystan Company. I have no objection to your publishing in the next issue of THE BULLETIN a statement of the fact that they hold a patent on water-soluble chlorophyll compositions, and that their products are accepted by the NNR; but if this is done, I think it only fair to publish a list of all chlorophyll preparations on the market as well.

GLEN J. SPERANDIO
Assistant Professor of Pharmacy
Purdue University
School of Pharmacy
Lafayette, Indiana

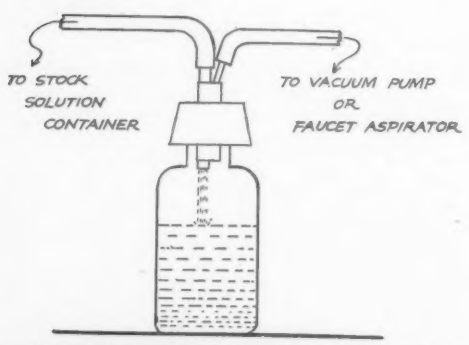
I



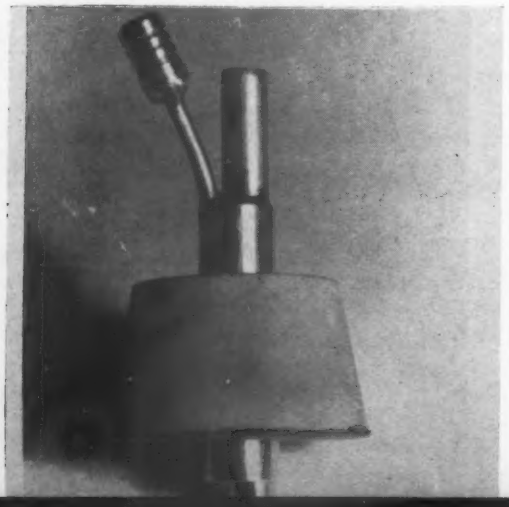
II



III



IV



V

AN INEXPENSIVE **BOTTLE FILLING HEAD**

By Arnold H. Dodge

After filling many thousands of bottles by funnel, syphon, and just plain pouring from big ones into little ones, this bottle filling head was devised. It has proven to be rapid and efficient, a real aid to the prepackaging of ward and outpatient medications. Material costs amount to but a few cents and storage space is practically nil. Any hospital or local machine shop can turn one out in less then thirty minutes.

MATERIALS NEEDED (FIGURE I)

1 piece brass bar stock, ½ inch in diameter, 1¾ inches long.
1 piece brass bar stock, ½ inch in diameter, 1 inch long.
1 piece copper tubing, 5/16 inch outside diameter, 3 inches long (¼ inch tubing may be used if desired).
1 piece copper tubing, ⅛ inch outside diameter, 3 inches long.
1 No. 7 or No. 8 soft rubber stopper.

TO MANUFACTURE (FIGURES II OR III)

Place brass stock in four jaw chuck or metal turning lathe, adjust off-center and drill one 5/16 inch (¼ inch if ¼ inch tubing is used) and ⅛ inch hole as shown. Brass nipple is turned down to 5/16 inch, fluted if desired, and drilled with a ⅛ inch drill. Cut nipple to measure about ½ inch in length. Insert tubing in holes, bend vacuum line to one side and flow in a small amount of solder, at points shown, with the aid of a small alcohol torch. Drill ½ inch hole in rubber stopper with a cork boring tool lubricated with water. Insert metal body into stopper.

TO ASSEMBLE (FIGURE IV)

Attach a suitable length of ordinary gum or red rubber tubing to fluid intake line. This length of course will vary depending on size and

(*Continued on page 45*)

ARNOLD H. DODGE, B.S., is chief of the pharmaceutical service, United States Public Health Service Hospital, San Francisco, California.

Presented at the Annual Meeting of the ASHP in Buffalo, New York, August 26-28, 1951.

steps in the development of a Formulary in a small open staff hospital

By CHARLES B. BARNETT

I always look forward to meeting with a group of hospital pharmacists, because of the opportunity it affords me to discuss problems of common interest. I am especially happy to meet with this group from all sections of the United States, Canada and Puerto Rico, representing all sizes and types of hospitals, because of your enthusiasm and the wide experience you have in hospital pharmacy work and your willingness to share your experience with others. It is after such contact that we return to our jobs prepared to render better pharmaceutical service in our respective hospitals.

One of the problems confronting many hospital pharmacists in small open staff hospitals is dead stock and duplications. Many of our small hospitals have thousands of dollars tied up in dead stock, much of which has become obsolete in a very short period of time. If we check over this stock we will find, in many instances, we have hundreds of dollars tied up in basic drugs under various trade names. In many of our small open staff hospitals, we will find in the current inventories many brands of the same similar items. This duplication of the basic drugs causes unnecessary inventories and many of the brands are doomed for the dead stock inventory within a short period of time.

CHARLES B. BARNETT is chief pharmacist at St. Luke's Hospital Jacksonville, Fla.

Presented at the Seventh Institute on Hospital Pharmacy, New Orleans, La., June 11-15, 1951.

VALUE OF FORMULARY

Many of our large hospitals and a few of our small open staff hospitals have solved this problem by establishing a formulary. The value of the formulary has been recognized by hospital administrators, the medical profession and the hospital pharmacists.

Writing for the publication *Hospitals* on the subject, *Hospital Pharmacy,* Dr. C. C. Hillman, director of Jackson Memorial Hospital in Miami, said, "The administrator must appreciate in the economy of control and rapid turnover of drug stocks, the value of a hospital formulary in minimizing duplications of therapeutically similar items."

In answer to our inquiry concerning the views of the Council on Pharmacy and Chemistry of the American Medical Association on the formulary, Dr. Austin Smith, formerly secretary of the Committee, now editor of the *Journal of the American Medical Association,* wrote, "The Council does believe that a great deal can be gained from the use of a good hospital formulary."

Speaking before a class in hospital administration at Northwestern University, Hans S. Hansen, then chief pharmacist, but now administrator of Grant Hospital, Chicago, said, "The secret of

sound financial operation of the pharmacy is doing as much business as possible with as low an inventory as possible. Turn over of stock. There are several factors that make for a greater turnover. The most important is establishing a formulary for the control of stock."

Dr. Perry A. Foote, dean of the College of Pharmacy, University of Florida, has recognized the need of a formulary for the professional pharmacists of Florida. The Bureau of Professional Relations, under the able leadership of Dr. Foote, as director and Mr. Charles S. Haupt, associate director, compiled a formulary which has the approval of the Florida Medical Association, the State Board of Pharmacy and the Florida Pharmaceutical Association.

Further proof of the need of a formulary was very well expressed by one of our leading pharmaceutical houses in a recent advertisement to the drug trade, I quote from the ad—"Pharmacists must be alert to the times, be ever ready to conform to current medical opinion. The free and open competition that now prevails in the drug industry makes this task extremely difficult. Countless brands of the same or similar items, many with little promise of continued demand are under constant promotion." However, their suggested solution is not the formulary.

I believe the value of the formulary is well recognized by the hospital pharmacist in the small open staff hospitals, but the problem that confronts us is, "How can we get our medical staff to accept the formulary?"

We have recently had a formulary accepted in our hospital, which has an open staff of about 225 doctors and dentists. I am going to give you some of our experiences and observations and detail some of the steps we feel were important in getting the support and cooperation of the medical staff.

WORK WITH ADMINISTRATOR

First, we felt proper ground work must be layed before the program could be initiated. Each hospital pharmacist must determine the necessary foundation for the program. However, I am going to mention some of the things we did.

In 1948, I attended the third Institute on hospital pharmacy held in Princeton, N. J. and at this Institute, Don Francke discussed the Pharmacy and Therapeutics Committee and the formulary. I was sold on the idea. On my return home, I made a report of the Institute to my administrator and in this report I mentioned the desirability of a formulary. However, at that time, I was not well enough informed nor did I have the proper groundwork to push the idea. After discussing the idea with my administrator, I was assured of his support, but first I must prepare myself by acquiring all the information possible about the formulary and at the same time, I must build a good professional relationship between the pharmacy department, and the medical and nursing staffs. Here, I would like to stress the importance of discussing your problems and desires with your administrator, because he can give you valuable assistance in establishing the formulary. Keep him advised of your progress.

In the preparation for the initiation of the formulary, I am very grateful to THE BULLETIN, the ASHP, the *American Professional Pharmacist,* Hans Hansen, Tom Reamer, Herb Flack, Jane Rogan, Sister M. Jeanette, Don Francke, Anna Thiel and others for the valuable assistance given me.

ESTABLISH GOOD PROFESSIONAL RELATIONS

During the period of time I was assembling the information, I began to build a more pleasant professional and personal relationship between the pharmacy and the medical and nursing staffs. This relationship is important because, as I will point out later, you will need the cooperation of both staffs to be successful in the application of this formulary.

There are many ways in which this relationship may be built. I will mention some we found to be helpful:

Attend Medical Staff meetings. I attend every staff meeting. It affords me the opportunity to get better acquainted with the members of the staff. I never enter into any discussion unless asked, but if questions are asked about the pharmacy or pharmaceuticals, I gladly answer to the best of my ability.

Issue a pharmacy bulletin to the medical staff. Our bulletin was issued for a few months by the pharmacist without the aid of an advisory board. After the Pharmacy and Therapeutics Committee was appointed, I asked for an advisory board or committee. The medical staff thought enough of our Bulletin efforts to ask the Pharmacy and Therapeutics Committee to serve in that capacity. Our normal channels of distribution includes all nursing personnel as well as the physicians.

Cooperate with the Nursing Staff. Maintain a good reference library. A special service that nurses have appreciated is our "built-up" reference library. Take interest in the activities of the nursing departments; attend the capping exercises, the graduation exercises, basketball games, and any other functions, they may sponsor. I have found that my attendance is appreciated and has paid off many times by cooperation I receive from the departments.

Cooperation with the Administrator. Monthly reports were furnished. In presenting him with our problems, we asked for his advise. Suggestions were made which we felt would improve the services of the pharmacy. I kept him advised of the progress I was making toward establishing the formulary. He was of great help to me in advising as to the timing of the program. In June, 1949, one year after I first mentioned the desirability of the formulary to my administrator, I felt I had acquired enough information and had built the necessary foundation to pursue the matter further. At this time, I presented my administrator with a detail report pointing out the needs and the advantages of the formulary to the hospital, the physicians, and to the patients.

Some of the advantages given were: (1) To prevent duplications in inventory of identical drugs carried under various trade names. For illustration, we listed some of the basic drugs along with their numerous trade names. (2) To prevent dead stock. To illustrate this point, we presented a list of "trade name" drugs which had become dead stock, while the same basic drugs were being prescribed in the hospital under other trade names. We pointed out that the prescribing of a trade name item often depends upon the popularity of the medical service representative in the locality. (3) The formulary will reduce the amount of inventory necessary. (4) Price declines can be better adjusted. (5) Outdated drugs can be better controlled. (6) Better prices can be obtained by quantity purchases. (7) Better prices can be obtained by having a number of quality manufacturers bid on the drug under its proprietary name, even though they will supply their trade-marked product. (8) The Council on Pharmacy and Chemistry of the American Medical Association has endorsed the hospital formulary. I attached a letter from the Secretary of the Council to substantiate this claim. (9) The formulary will not limit the prescribing habits of a single physician. We pointed out that the physician could continue to prescribe his favorite trade name items, but unless he specifically requested it, the order would be filled with the basic drugs but not necessarily the brand name called for.

APPOINT PHARMACY AND THERAPEUTICS COMMITTEE

In this report I made the specific request that a committee be appointed to consider the formulary. My administrator was very much in favor of the committee and he discussed the idea with some key men of the staff; they too were in favor.

At the July meeting of the executive staff, he presented the report together with his endorsement. The president, after a conference with my administrator and I, appointed a committee to study the report with instructions to report their recommendations back to the executive staff. The personnel of this committee is of great importance. You need on this committee men with the following qualifications: (1) Men who have the respect and confidence of your administrator. (2) Men who have the respect and confidence of the other members of the staff. (3) Men who have the interest of the hospital at heart. (4) Men who have good practice, but not too busy on other committees to serve on this one.

Some hospitals have the chiefs of each department on the committee; however, we felt that our department chiefs were too busy with other committees and activities of the hospital to give this committee enough time and thought; therefore, we selected younger men from each department. I personally feel it is advisable for the administrator, the pharmacist and the president of the staff to consult, in order that men will be appointed that will be cooperative and acceptable. Much of the success is dependent on the personnel of the committee.

Shortly after the committee was appointed, we furnished each member a copy of the report made to the executive staff, in order that they might study it and be better prepared to make their recommendations.

STANDARDIZATION PROGRAM PLANNED

On August 1st when the committee met, all the members were present and the administrator offered his full support. At this meeting, it was decided that a standardization program was desirable. At the meeting of the executive staff on August 8th, the committee recommended that a list of basic drugs be dispensed by the pharmacy on trial basis until the next regular meeting of the general medical staff in October.

The executive staff approved, and on August 12th, a copy of the report along with the action of the executive staff, was mailed to each member of the medical staff, along with a letter from the administrator urging them to study the report for action at the October meeting.

On October 11th, the general medical staff met with one of the largest attendances on record and after full open discussion of the proposal by various members, it unanimously approved the continuance of the program of standardization and establishment of a Pharmacy and Therapeutics Committee for the purpose of compiling a

formulary. The personnel of the special committee was asked to serve on the newly created Pharmacy and Therapeutic Committee. In compiling the formulary, the committee met the first Tuesday in each month to consider drugs to be included in the formulary.

They expected me to prepare for them a list of drugs for consideration. I prepared the list and got it to them a few days before the scheduled meeting, this gave them time to study it for their recommendations. The recommendations were sent to the medical staff for approval on the 2nd Tuesday in each month. Even though we completed our first edition of the formulary last November, we have continued to meet each month to review and revise the formulary. Dinner is served by the hospital at each meeting.

APPLICATION OF FORMULARY

The application of the formulary depends entirely upon the pharmacist with the cooperation of the nursing staff. We realized if we tried to get the doctors to write for the official names rather than trade name, we would run into trouble; therefore, we presented in our rules governing the application of the formulary this clause:

"Prescriptions calling for trade name drugs will be filled with the basic drug but not necessarily with the brand called for under the registered trade name." Therefore, we are at liberty to dispense any one of the many brands we might have in stock. We have made it clear to all the doctors that if for any reason they prefer a special trade name, we would get it for them.

SOME DON'TS

Don't leave the impression with the staff that the program is yours; sell them on the idea, and then it will be *their* program. They will support *their* program, while on the other hand, they might resent it if made to appear it was the program of the pharmacist. During the early days of our committee, some of the detail men approached members of our medical staff, and made remarks against the formulary. The doctors were so well sold on the plan that they actually resented any remarks against it.

Don't stock inferior or unknown products in in your Pharmacy Department for, after all, one of the great savings is in eliminating duplications; for instance, before the formulary, we had 10 brands of therapeutic vitamins in our inventory. Now we only have one and it is not the cheapest one on the market, if a doctor calls by the pharmacy and asks "What therapeutic vitamin are we dispensing?" we can produce the bottle with pride and without fear it will not be acceptable. The same is true with other vitamins, hormones and other drugs where duplications could be.

In closing, I would like to stress this, before you try to establish the formulary in your hospital; prepare yourself well, build pleasant relationship with your administrator, your medical staff and your nursing staff. Let your administrator push the plan for you; he knows who to contact and if opposition arises he will be better prepared to handle it. You will find that the formulary brings an improvement in pharmaceutical services. In discussing the formulary plans with my administrator, he said, "the principal and necessary ingredients of any plan for the improvements of these services are: (1) A pharmacist who thinks, is willing to work and energetic enough to suggest improvements in procedures for the best interest of the patients and the hospital. (2) An administrator who listens to his department heads, is quick to catch on, has the confidence of the staff and is not afraid to propose and push new ideas. (3) A medical staff headed by men with some vision, practical sense and confidence in the administrative department of the hospital."

The fact that you are here is evidence you are energetic and looking for ways to improve the pharmaceutical services in your hospitals. To you who do not have a formulary, I urge you to go back to your hospitals, work out a plan and present it to your Administrator. You will get his wholehearted approval. Then follow through to the medical staff. By doing this, you will benefit your staff, your hospital and the patients, as well as increase your prestige with the medical profession. It can be done, but it's up to you to initiate the program.

HANS S. HANSEN, formerly chief pharmacist at Grant Hospital in Chicago, is now administrator at that institution.

Mr. Hansen was named recipient of the 1951 H.A.K. Whitney Lecture Award by the Michigan Society of Hospital Pharmacists in recognition of his services to his profession.

The award, which is presented annually to an individual who has made outstanding contributions to hospital pharmacy, was established in honor of Mr. Whitney in 1950. Mr. Whitney was probably more instrumental in establishing the American Society of Hospital Pharmacists than any other person and served as the first chairman of this organization. In 1950 the award was presented to Dr. W. Arthur Purdum, chief pharmacist at Johns Hopkins Hospital in Baltimore.

The award will be made in April this year, however, the recipient has not yet been named.

WORK

And whosoever
shall compel thee
to go one mile,
go with him two.
MATTHEW 5: 41

by the side of WORK

By HANS S. HANSEN

I have never been a very good story teller, so I have avoided the use of stories in opening remarks. Tonight, however, I am going to use one. It is not humorous and it is one you have all heard many times, at least I hope you have. Some who have children have told them this story.

It is the story of Adam and Eve and the Garden of Eden. God created these two and gave them this beautiful place as a home. They could enjoy all the pleasures and comforts that anyone could imagine but, you recall, there was a little restriction placed upon them. I have had the idea, for some time, that God looked upon his handiwork and questioned their fitness for this life in the Garden, so he willed that they disobey and eat of the fruit from the tree of good and evil. The God of the Old Testament is a stern, wrathful and sometimes cruel God, so many theologians agree that this curse of earning their bread by the sweat of their brows was a punishment. I would rather think that it was a blessing; a blessing that has been man's salvation.

Work has been the butt of many a joke and story and we all say we hate work but we don't mean it, for it is only through work that we find happiness and a measure of success and it is immaterial what kind of work you do, just so you like it and take pride in it. Sometimes I wonder if pride in work is a thing of the past. I remember as a boy, watching a carriage maker varnish carriages; such time and care he put into this final process. Rubbing and polishing each succeeding coat; step-

ping back to admire, but with a critical eye as well for his craftsmanship. I wonder if we pharmacists can step back and, with a critical eye, admire any or all of our finished prescriptions.

The work I want to talk about this evening is not the work that furnishes us our daily bread; some of this other work may, however, be the means of having cake with our daily bread. I want to explore two areas of work with the thought in mind that the Michigan Society of Hospital Pharmacists might investigate these two areas and spearhead a movement of development. Your group has pioneered before for hospital pharmacy.

Through the efforts of Harvey Whitney and yourselves, hospital pharmacy received the impetus that has brought it to its enviable position in pharmacy today. I am convinced, in spite of what other groups in pharmacy may think or say, that pharmacy's standing among the health professions today is due, in large measure, to hospital pharmacy. In making this statement I am not unmindful of, nor do I want to belittle the work of other groups in pharmacy; but I guess I am a bit prejudiced. However in our admiration for the present day pharmacists, we should not forget our wonderful heritage including such men as Serturner, Robiquet, Brandes, Scheele, Balard, Pellitier and many others.

OPPORTUNITIES WITHIN THE HOSPITAL

Even though hospital pharmacy has made great strides in the past decade, there still remains much to be done. We cannot stop in our efforts, times change, and unless we accept changes and adjust hospital pharmacy to these, we are through as an important department in the hospital. A few weeks ago I had the opportunity to attend a conference on Human Relations in Administration in the hospital. It was brought out that the hospital pharmacist is pretty much alone in the hospital picture. Other workers, because of their greater numbers, can get together within the hospital, talk over their problems and air their gripes. The lecturers suggested that this was corrected, to some extent, by membership in local, district, state, and national pharmaceutical societies and associations. Here one meets with fellow pharmacists and, like the walrus and the carpenter, talks of many things, of prices and hours and penicillin—of records and the administrator and why the hospital is so full and whether interns and residents really know the score. All this may satisfy a need or a want and give the hospital pharmacist a feeling of solidarity. It is good but this is not enough; that feeling of being alone will persist until the hospital pharmacist fits his job into the hospital as a whole. We are, I am sure, in agreement of pharmacy's importance in the hospital but does the hospital pharmacist take advantage of this opportunity; of this importance of himself and his department. You may say, "Of course he does. Why, doesn't he fill all orders and prescriptions; doesn't he keep good records; doesn't he keep abreast of all that is new, pharmaceutically speaking; he keeps his department neat and clean; opens on time and closes on time; has he not satisfied the implied need, required when he was appointed chief of the department?" When he closes on time, he goes home with the feeling of a job well done, satisfied that he has earned his daily bread. But he is not, and never will be, a part of the whole picture, if he continues so. He must change, he must work at work by the side of work. Work that, for the time being at least, does not return wages. You ask, "What is this work?" In every hospital we find many and varied activities, all apart from the actual care of the patient but never-the-less a part of the whole. These are the Medical Staff Meetings, the Clinical Pathological Conferences, Medical Departmental Meetings, the activities of the Nursing Department, capping, graduation, refresher courses, alumnae activities, the activities of the Woman's Auxiliary, the hospital's drives for funds. You say you doubt your welcome; don't worry about that; there is more to do than they can find workers for. If you once begin to take an active part, you will enjoy it and the new friendships found. Do this to a degree that no function is complete without the presence of the pharmacist; make yourself indispensable. It will mean work, but rewards will be there as well.

May I suggest another activity? University and large teaching hospitals should and do carry on research that, many times, includes the services of the Pharmacy Department. But size is not the determining factor. If your hospital does not do any clinical research, that does not prevent you from doing some of your own. This probably cannot be clinical in nature, but there are many other areas for such research. How about a little study on the value of records? We all keep many of these and unless some use is made of a record, it is wasted effort. To illustrate: let us assume that a study of the value of records was to be made as to their value in the control of the use of barbiturates in hospitals. This would require the use of questionnaire sent to co-operating hospital pharmacists. It would bring out facts such as the following, and this is true.

This is the story of two hospitals; they are located in the same suburban area, have approximately the same bed complement, the quality and quantity of the medical staff are almost identical,

the clientele are about alike as to economic status, ranging from the lower income groups through to the highest bracket. Both have good pharmacists and pharmacies. In one hospital the pharmacist, a few years ago, put his distribution of barbiturates on a record control as strict as the one for narcotics. In the other the distribution is more or less comparable to floor stock drugs. The one with the record control uses about ten thousand doses annually of one of the more popular trade name barbiturates. The other, without any controls, used fifty thousand annually. It is not necessary to elaborate on the economic significance of this. I can imagine the open armed acceptance, by hospital administrators, of such a study. I have had the opportunity of talking to future hospital administrators at two schools, for the past few years. It has been my observation that they accept the fact that if they employ a good hospital pharmacist, they will have a good professional service. But the portion of the lecture that elicits most questions is that on the economics of hospital pharmacy.

IMPORTANCE OF BUSINESS ASPECTS

I would like to see the Michigan Society of Hospital Pharmacists initiate a program of education among hospital pharmacists on the importance of the business or economic side of hospital pharmacy. Make this a real basic program; see to it that it is outlined in our BULLETIN but when results are to be published, let there be feature articles in hospital journals. As long as hospitals operate on the present philosophy that the adjunct departments shall carry the load, so long will administrators be interested in the economies of these adjunct departments. This philosophy has carried on from the days when hospitals were places for the poor to come to die. No attempt was made to operate at cost. Each year, charity carried the load. As medical science developed and new therapy as well as diagnostic aids were introduced, hospitals became places for rich and poor to go in order to regain health; but the concept of charity remained and adjunct services had to carry the burden. This thinking is wrong; such a philosophy should be discarded, but as long as it prevails the hospital administrator will welcome a Pharmacy Department that produces a good revenue. Your department should be one of the best of adjunct departments and this does not have to be at the expense of the patient if you develop sound business principles. Why not, in this connection, develop a study of economic waste in the use of therapeutic agents. This could be on the basis of misuse, use after need was gone, use of high priced specialties when U.S.P. and N.F. preparations would serve. This study will require the help of your Medical Records Department and they should be willing to assist you as it is part of their duty to assist in all research projects.

I have mentioned records before. I suppose unused records and statistics would paper many a hospital's walls. Maybe that is why so many hospital pharmacists abhor records. I have talked to many and I believe they would use records that fit their particular pharmacy. Why not then, develop a basic set of records that could be adjusted to fit most general hospital pharmacies. How about a hospital pharmacist writing a text on materia medica that would fit into the educational program of the student nurse. He knows better than most professional people what a student nurse should have in this field. How about a hospital pharmacist developing a handbook for medical interns; conducting a time and motion study; developing a program of better human relations and many other things.

The last area that I would like to call to your attention tonight, and suggest that hospital pharmacists explore, has nothing to do with pharmacy as such but you will be better hospital pharmacists if you will do so. Not only better hospital pharmacists, but better citizens as well as better human beings. One thing professional people are so apt to do is to live their whole lives within the bounds of their profession. This is natural and is, in some respects, an interesting life but it is also a very narrow life. I heard a director of a professional department state that he insists and sees to it that his technicians spend some of their leisure time in cultural pursuits. He is convinced, from observing this over a period of years, that he has better technicians. This particular area of activity I would now suggest is the community in which you live and work. You owe your community something and if you pass up this responsibility, you will have missed something in life. There are many channels through which you can achieve this: the church, the schools, service clubs, and political organizations. The real worthwhile folks in the community are those who are busy with the art of living. Don't spread yourself too thin; select one of these avenues and give it some of your time.

In suggesting the last area for us to explore, it is my hope that we can, in a small measure, attempt to level off this lop-sided civilization of ours. Scientifically we are way up on the top of the mountain of civilization but spiritually and socially we are still at the foot stumbling around in the morass. It may be 1951 A.D. scientifically but spiritually and socially it is, let us say, 500 B.C.

a study of bacterial types found in anesthetizing apparatus

by DONALD E. SHAY *and* JUNIOR M. JOSEPH

The title of this paper has been listed in the program as "A Study of Bacterial Types Found in Operating Room Equipment." I should like to modify the title somewhat and refer to this report as a preliminary one dealing only with operating room equipment which is used during the administration of gaseous anesthetics.

To the best of the author's knowledge, a study of the sanitization of operating room equipment of this type has not been discussed.

In the book, "Aseptic Treatment of Wounds," by Walter,[1] there is an excellent discussion of the sanitization and care of practically all hospital equipment, but the author fails to discuss the sanitization of equipment used to administer gaseous anesthetics. This study was initiated because of this omission in the literature and because it has come to the attention of the author that patients who had undergone anesthesia for surgical purposes, using the same apparatus during a one week period, developed follicular tonsillitis. One might conclude from this evidence that the soda lime tower in this equipment is inadequate for the complete removal of bacteria laden droplets exhaled by the patient under anesthesia and in reality is the mode of transfer of disease.

In addition to the dissipation of disease, the administration of anesthetics will contribute to the invasiveness and production of disease by microorganisms. Dubin (1945)[2] found it much easier to produce influenza pneumonia in anesthetized ferrets and mice than in similar animals which had not been anesthetized.

Thus, it is apparent from the above discussion that, if an organism is exhaled into the anesthetizing apparatus, disease transmission is highly favorable.

Studies were designed to determine the passage of microorganisms from the patient to the apparatus; to isolate and identify species present; to establish disease transmission by anesthetizing apparatus; and to institute proper methods of sanitization.

DONALD E. SHAY is head of the Department of Bacteriology, Baltimore College of Dental Surgery, Dental School, University of Maryland, Baltimore, Md.

JUNIOR M. JOSEPH is a graduate assistant in the Department of Bacteriology, Baltimore College of Dental Surgery, Dental School, University of Maryland, Baltimore, Md.

Presented at the 1951 Annual Meeting of the American Society of Hospital Pharmacists, Buffalo, N. Y., August 26, 27 and 28.

EXPERIMENTAL PROCEDURE

Samples for examination were collected from the tubes and the rebreathing bags of the anesthetizing apparatus. This was effected by adding 250 cc. of sterile tap-water to each tube and properly manipulating to remove as many organisms as possible. The rinsings were collected in sterile liter flasks. Rebreathing bags were removed and thoroughly rinsed with 500 cc. of sterile tap water.

Samples for comparison were collected from the anesthetizing apparatus immediately after removal from the patient, from the apparatus which was uncleaned and permitted to stand for several days, and from the apparatus rinsed with water immediately after use.

Total bacterial counts were made on all samples by using the conventional dilution method. Various colonies appearing on the agar plates after incubation were transferred and properly numbered in order to maintain viability and identity. Isolated colonies were studied microscopically, biochemically and culturally to establish their generic and species names. All organisms isolated were tested for hemolysis on blood agar, Gram reaction, motility, spore formation, pigmentation and colony type on nutrient agar. Reactions for triple sugar iron agar, desoxycholate agar, sugar broths, gelatin, nitrate and IMVic for the organisms investigated were contingent upon the aforementioned reactions.

This procedure provides data relative to the passage of organisms from the patient to the rebreathing bag of the anesthetizing apparatus, species commonly transferred, and the possibility of disease transmission under supposedly sanitary conditions.

To isolate the more fastidious organisms, samples removed from apparatus were plated on selective and differential media, and colonies which developed were characterized to determine their pathogenicity. Since patients known to harbor pathogenic bacteria or viruses were not placed under anesthesia in the cases studied, only a few pathogens of minor significance were anticipated. These should suffice to establish transmissibility.

Anesthetizing apparatus was sanitized immediately following their use by rinsing with tap water and washing with pHisoderm with 3 percent hexachlorophene commonly known as G-11. Samples were taken from the tubes and the rebreathing bags and total counts of microorganisms were determined. Colonies appearing on nutrient agar plates were isolated and studied microscopically, culturally, and biochemically for taxonomic allocation. Contrasting these studies with previous observations should provide insight into the methods of efficient sanitization.

RESULTS

A study of the source of the previously mentioned cases of follicular tonsillitis in all patients given an anesthetic during a one week period indicated the transfer of microbes from patient to patient by inefficiently sanitized apparatus. Further studies by direct counts, isolation and characterization of microorganisms substantiated the previous observations.

By taking cognizance of the data in Table I, where the results are expressed in organisms per cc. for apparatus tested immediately following use, it is apparent that organisms pass through the soda lime tower to the rebreathing bag. They should then be capable of being transferred to the next patient anesthetized, since one does not pay particular attention to this part of the apparatus.

TABLE I. TOTAL COUNTS ON APPARATUS IMMEDIATELY AFTER USE

APPARATUS	TOTAL COUNTS	
	TUBE	REBREATHING BAG
A-1	420,000	345,000
A-2	200,000	368,000
A-3	1,000,000	648,000
A-4	2,205,000	673,000
A-5	3,400,000	530,000

Table II shows that apparatus which has not been cleaned or used for several days contain viable organisms (dormant) even though nutrients are absent.

TABLE II. TOTAL COUNTS OF BACTERIA FROM UNCLEANED APPARATUS AFTER STANDING SEVERAL DAYS

APPARATUS	TOTAL COUNTS	
	TUBE	REBREATHING BAG
B-1	580,000	330,000
B-2	300,000	670,000
B-3	80,000	2,400,000
B-4	250,000	756,000

The results in Table III illustrate the methods of sanitization employed by hospitals are not adequate and therefore are conducive to postoperative infections which are usually attributed to other causes.

Taxonomic studies of microbes retained by anesthetizing apparatus revealed the presence of numerous saprophytic members of the genera *Bacillus* and *Micrococcus*. In addition, several

TABLE III. TOTAL COUNTS ON APPARATUS RINSED WITH WATER IMMEDIATELY AFTER USE

APPARATUS	TOTAL COUNTS	
	TUBE	REBREATHING BAG
C-1	6,300	2,000
C-2	2,460	18,000
C-3	28,000	6,000
C-4	29,800	28,000
C-5	34,600	29,500

pathogenic and hemolytic (blood agar) species were isolated and identified. Microorganisms most commonly inhabiting the nose or throat were frequently encountered in all apparatus examined. *Pseudomonas aeruginosa, Micrococcus pyogenes var. aureus, Micrococcus pyogenes var. albus* and hemolytic Streptococcus were some of the type pathogens isolated. Fungi of the Genus *Aspergillus* were consistently present.

Table IV will elucidate more emphatically the type genera and species which have been identified. From a consideration of the data presented herein, it is highly probable that disease is frequently spread by anesthetizing apparatus which has not been properly sanitized.

TABLE IV. ORGANISMS ISOLATED FROM ANESTHETIZING EQUIPMENT

REBREATHING BAG	TUBE
Staph. aureus	Staph. aureus
Staph. albus	Staph. albus
Bact. mycoides	Hemolytic strept.
Bac. subtilis	Strept. spp.
Asper. niger	Sarcina spp.
Asper. spp.	P. aeruginosa
P. aeruginosa	Pseudomonas spp.
Pseudomonas spp.	

Apparatus removed from the patient and immediately sanitized according to routine methods most commonly employed (rinsing with tap water) were found to contain dangerous and viable or-

TABLE V. TOTAL COUNTS AFTER USING PHISODERM WITH 3 PERCENT G-11 AS A SANITIZING AGENT

APPARATUS	TOTAL COUNTS	
	TUBE	REBREATHING BAG
D-1	192	200
D-2	1,300	805
D-3	198	167
D-4	523	628

ganisms. However, sanitization with water plus pHisoderm with 3 percent G-11 proved to be an appropriate procedure. This method is suggested for sanitizing anesthetizing tubes and rebreathing bags prior or immediately after use. Table V illustrates the effect of cleansing methods on the resulting degree of sanitization.

DISCUSSION

It is a general practice to regard anesthetizing equipment as safe by merely rinsing the air tubes with water. Since the soda lime tower separates the tubes from the rebreathing bag, the anesthetist assumes that the organisms are not capable of passing to the bag. This is definitely not the case as is borne out by the study of the outbreak of follicular tonsillitis which was traceable to an improperly sanitized anesthetizing apparatus. As previously stated, the patients anesthetized with this apparatus for a given week developed acute follicular tonsillitis.

Particular significance was placed upon the transmission of the tubercle bacillus and with this in mind studies were initiated to depict this possibility.

Acid-fast *Mycobacterium tuberculosis var. hominis* and *Mycobacterium var. bovis* were never shown to be present in apparatus examined. However, patients who were known to harbor the T. B. bacillus were not anesthetized in any of the cases studied

Although tubercle bacilli were absent, several pathogenic species of microbes were isolated and identified. Pyogenic *Micrococcus, Streptococcus, and Pseudomonas aeruginosa* were frequently present. These organisms are likely to become secondary invaders and in addition produce serious primary infections in their own right.

Saprophytic micrococci and bacilli were consistently isolated, and even though they are nonpathogenic *per se* they are occasionally incriminated as secondary invaders complicating more acute diseases. Species of organisms of the genera *Bacillus* (B. subtilis) and *Micrococcus* (M. citreus) depict Secondary infective agents commonly observed.

Viruses were not included in this report although we feel they are certainly transmitted by anesthetizing apparatus. Virus infections would appear to be most frequently transmitted agents due to their sub-microscopic size and distribution.

Several species of unidentified hemolytic microbes of the genera *Micrococcus, Streptococcus,* and *Bacillus* were represented but their relation or etiology to disease is dubious. These organisms occurred with greater frequency in the air tubes than in the rebreathing bags.

Aspergillus species and three other unidentified species of fungi were obtained in tremendous numbers from the rebreathing bags of some of the apparatus tested. This may be due to the collection of debris in the rebreathing bags which serves as an excellent pabulum or to the resistance of the fungal spores.

Sanitizing the apparatus with pHisoderm plus 3 percent G-11 was found to be most effective in reducing the microbial count and also in the destruction of pathogens. This compound was selected because of its known antibacterial activity and because it was being used in the operating rooms for presurgical scrubbing.

SUMMARY

From a preliminary survey of the general procedure of administering anesthetics and the sanitization of used apparatus, the following conclusions can be formulated:

(1) Methods commonly employed for the sanitization of anesthetizing apparatus are not appropriate.

(2) Disease transmissions is definitely probably and was shown to have occurred.

(3) Mycobacterium tuberculosis was not isolated in any of the cases studied directly from anesthetizing apparatus, but dissemination of these acid-fast bacilli is highly probable.

(4) Pyogenic *Micrococcus, Streptococcus,* and *Pseudomonas aeruginosa* are the more commonly transferred genera.

(5) Saprophytic cocci and bacilli which may be secondary inciters are present in the rebreathing bag in enormous numbers.

(6) Several species of hemolytic bacteria were isolated but not identified. Their pathogenicity is equivocal.

(7) The transmission of virus diseases is also highly favored and probably occurs with unrecognized frequency.

(8) Fungal diseases may be purveyed to patients from an infected patient who was previously anesthetized.

(9) Organisms of the nose and throat habitat, are capable of permeating the soda lime tower and passing to the rebreathing bag.

(10) Sanitizing anesthetizing apparatus is efficiently performed by cleaning the equipment with pHisoderm with 3 percent G-11 and water.

BIBLIOGRAPHY

1. Walter, C. W.: *The Aseptic Treatment of Wounds,* The Macmillan Co.,
2. Dubin, I. N.: Role of Ether Anesthetic in the Production of Influenza Virus Pneumonia in Mice, *J. Immunal., 51*:355, 1945.

Clinical Center - National Institutes of Health

BETHESDA, MARYLAND

IV Facilities for Pharmaceutical Service

by JOHN A. TRAUTMAN,
JACK MASUR *and*
GEORGE F ARCHAMBAULT

Laboratory research in nearly all fields of medical science has been conducted at the National Institutes of Health, the research bureau of the Public Health Service, Federal Security Agency for many years. There is under construction at the present time a Clinical Center (See Figure 1) which will furnish hospital facilities and approximately 1100 laboratory modules for the National Cancer Institute, the National Institute of Arthritis and Metabolic Diseases, the National Institute of Dental Research, the National Heart Institute, the National Institute of Mental Health, the National Microbiological Institute, and the National Institute of Neurological Diseases and Blindness. The bed capacity of the patient area of the Clinical Center will be 500.

In planning the Clinical Center, the Public Health Service and the Public Buildings Administration sought to design a laboratory-hospital building which would provide twice as much space for research laboratories as for the direct care of patients, afford proximity of scientific investigators and clinicians for free interchange of ideas and knowledge, and localize the basic science and clinical research laboratories and nursing units for each disease category for a coordinated team approach. The most desired elements to accomplish this purpose, utility and flexibility to meet the ever-changing requirements of laboratory research, patient care, and administrative practices, are keynoted throughout the structural design.

JOHN A. TRAUTMAN, M.D., JACK MASUR, M.D. AND GEORGE F. ARCHAMBAULT, PH.C., D.SC., LL.B. are respectively director, The Clinical Center, National Institutes of Health, chief of the Bureau of Medical Services and chief of the Pharmacy Branch, Division of Hospitals of the U.S. Public Health Service, Federal Security Agency, Washington, D.C.

Presented at the annual meeting of the American Society of Hospital Pharmacists, Buffalo, New York, August, 1951.

EXTENSIVE SERVICES

The Clinical Center will admit for treatment patients from all parts of the country who are suffering from the particular types of cancer, heart disease, mental disease, metabolic disease, neurological diseases and blindness or infectious or tropical disease under investigation by the various institutes. The criterion for admission of these cases will be appropriate, confirmed diagnosis during the period the category is under study at the National Institutes of Health. Referrals for admission may be made by private physicains, hospitals, and health agencies, after advance arrangements have been made and the patient has been accepted by the Clinical Center. Upon discharge, the patient will be returned to the referral source.

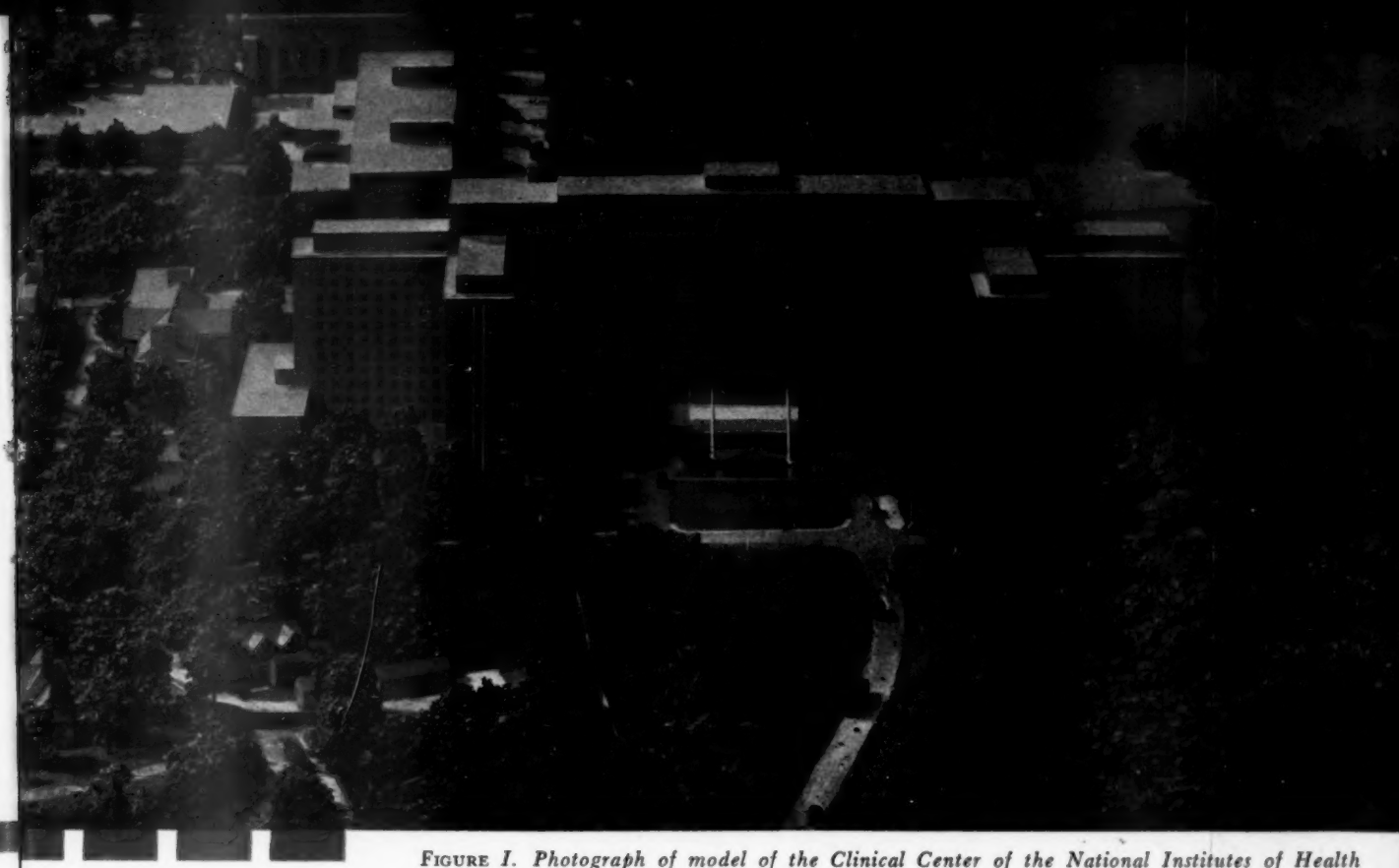


FIGURE I. *Photograph of model of the Clinical Center of the National Institutes of Health*

It is believed by the staffs of the National Institutes of Health that the integration of fundamental and clinical research with advanced methods of diagnosis and treatment will yield a high quality of patient care. It is evident that the constant, intimate collaboration among specialists in many branches of medicine and science will result in an increase in the knowledge needed for greater insight into the management and prevention of chronic illnesses.[1]

The Clinical Center is designed approximately in the shape of a Lorraine cross. The building is completely air-conditioned. The central stem utilizes a modified two-corridor three-function plan. All patients' rooms are located on the south side, the nursing and dietetic service units in the middle and the clinical investigation laboratories are on the north side. The central stem is flanked by six wings containing basic science laboratories.[1]

Included among the auxiliary service buildings in the construction program is a shops-laundry-storage building which will provide for bulk storage. The auxiliary buildings are connected with the Clinical Center by a tunnel for the transportation of supplies by electrically operated carts.

LOCATION AND SIZE OF THE PHARMACY

The location and size (approximately 4500 square feet) of the pharmacy are indicative of the important role which we believe it must serve in the activities of the Clinical Center. The pharmacy is located on the main floor of the hospital, off the lobby, in close proximity to (a) outpatient activities, (b) central bank of elevators, and (c) dumbwaiters (See Figure II). There are four high-speed dumbwaiters (each cab 2'-10" wide, 3'-0" deep, 3'-6" high, with three removable shelves) to service primarily the activities of the Central Supply and Sterilization (basement, immediately beneath the Pharmacy) and the Pharmacy. Three of the dumbwaiters are controlled by a selective, multiple, floor dispatch master panel located in (1) Central Supply and (2) Pharmacy. There are distinctive light signals for the dumbwaiter delivery in each nursing station. The fourth dumbwaiter is a "call and send" operation for use between the floors, especially at night. There is also a pneumatic tube system station in the Pharmacy. The carrier is 14" x 2-¾" and can be used for requisitions, special orders for small amounts of medications, and other special or emergency requests.

TRAFFIC FLOW

Drug and chemical baskets will be received into the Pharmacy via the dumbwaiter service (lobby F-102). The baskets on carts will enter the Pharmacy through the door in the dispensing

FUNCTIONAL AREAS WITHIN PHARMACY SERVICE

The Pharmacy has been designed to accommodate the following functional areas of activity (See Figure III):

1. *Package Dispensing Area (Prepackaging and Inpatient Medication Filling Area)*
2. *Working Storage Area*
3. *Manufacturing Area*
4. *Vault for Narcotics, Hypnotics, Spirituous Liquors, Ethyl Alcohol, and Inflammable Substances.*
5. *Research, Analysis, and Control Area*
6. *Special Sterile Solution Area*
7. *Special Technics Area*
8. *Outpatient Dispensing Area*
9. *Dispensing and Wrapping Counter Area*
10. *Office for Chief*
11. *Waiting Room Area*
12. *Dumbwaiter Service Lobby*

and wrapping counter area and into the unloading areas (unit 10) of the prepackaging dispensing department. Baskets will be filled in this area, checked, and returned to the dumbwaiters for transportation to all patient and laboratory areas. All routinely used drugs, medications, chemicals, etc., will be prepackaged in proper quantities for ward, clinic, individual patient, and laboratory use in this prepackaging and dispensing area.

Office—The chief of the pharmaceutical service has access to his office from the Pharmacy and from the corridor. This will facilitate visits by the staff and representatives of pharmaceutical companies and will also permit supervision of activities in the Pharmacy, especially the outpatient and ward and clinic issue areas. Plans include the installation of an audible communication system to be installed with a master station located at the desk of the chief pharmacist with eight substations to the key functional areas of the Pharmacy.

Storage Area—This area, located centrally in the Pharmacy, services the entire Pharmacy. Large bulk supplies will be kept in the auxiliary buildings connected by tunnel with regular delivery by electric carts. An effort has been made to secure the maximum utilization of Clinical Center space for scientific laboratories

THE CLINICAL CENTER OF THE NATIONAL INSTITUTES OF HEALTH

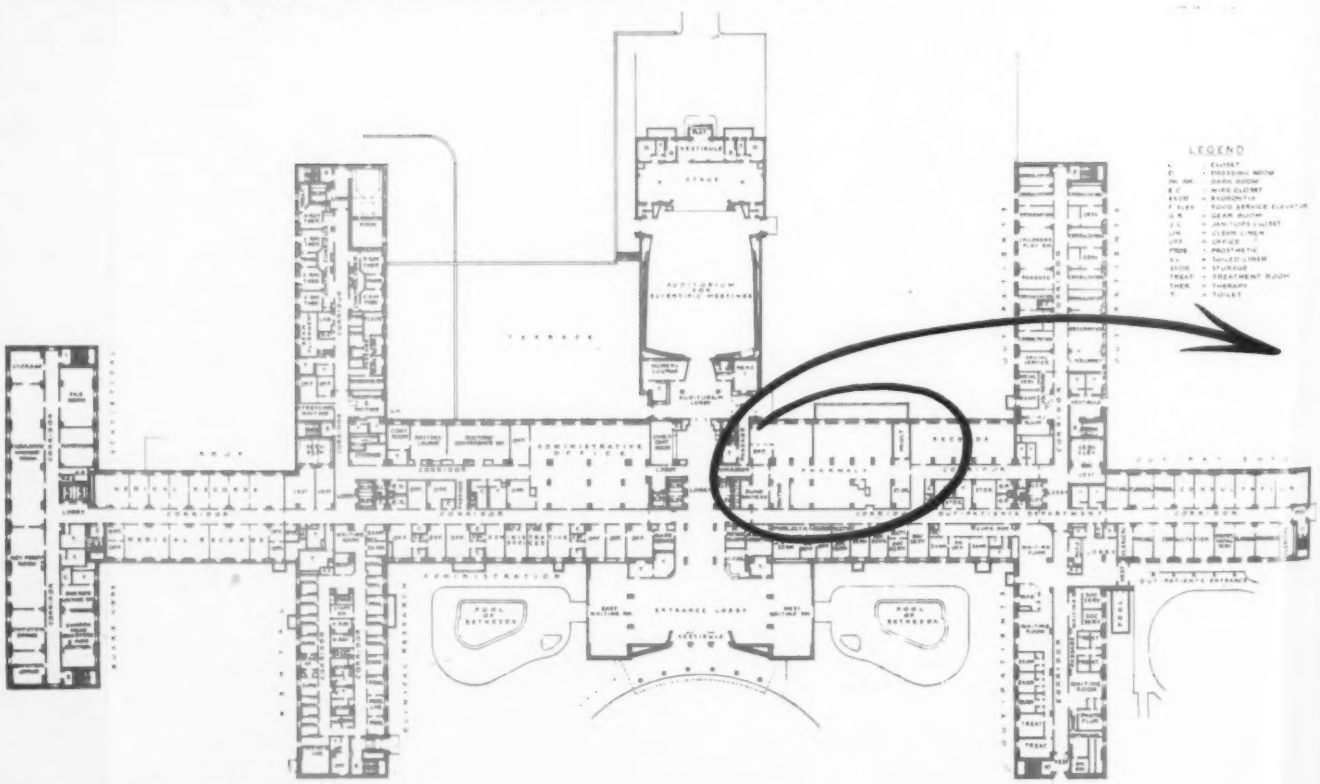


FIGURE II. *First Floor Plan.*

and patient care purposes. Storage facilities in other specially designed buildings include specialized safety facilities for bulk storage of volatile and combustible materials.

Manufacturing Area—The manufacturing area has been designed for the preparation of large-volume galenicals such as milks, gels, elixirs, soap and detergent solutions, antiseptics, ointments, creams, lotions, and others. Provisions have been made for electrical clocks to be installed in all key areas, those in the manufacturing and research areas to be the explosion proof switch type. Specifications call for stainless steel manufacturing and storage tanks set high enough off the floor to allow direct discharge into five-gallon carboys. Tanks will be portable, easy to clean, and one at least will be steam-jacketed.

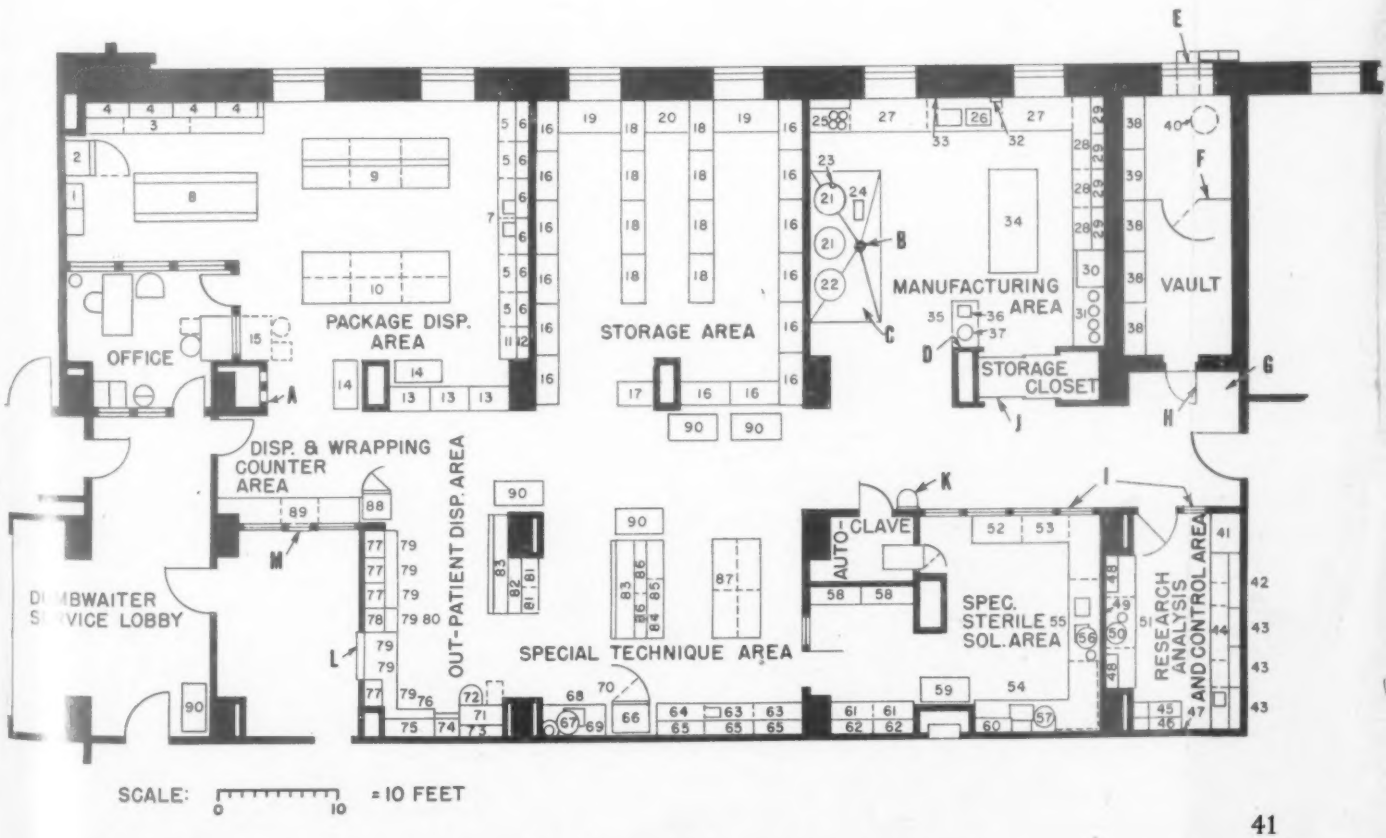
Vault—The inner portion of the vault will be for narcotic and barbiturate storage; the outer front portion will be for the storage of small bulk inflammables such as alcohol and ether. The vault will be equipped with a carbon dioxide fire sprinkler, blowout panel and special floor drains.

Research, Analysis and Control Area— This section will be devoted to pharmaceutical research, analysis, and control work in relationship to incoming supplies, standardization of finished pre-

GUIDE FOR SYMBOLS USED IN FIGURE III

A *Pneumatic tube station.*
B *Floor drain.*
C *Tile platform 2" high, water pipe below. Electric, steam, hot water, cold water, and distilled water outlets 5 feet above floor.*
D *Four electric outlets, 5 feet above floor.*
E *Scupper type floor drain and conductor to discharge on floor.*
F *Fifth grille.*
G *Carbon dioxide tank for vault sprinkler.*
H *Louvered door.*
I *Glazed port.*
J *Sliding doors.*
K *Drinking fountain.*
L *Plate glass with opening.*
M *Sliding window.*
Numbers 1 to 90 inclusive indicate equipment and fixtures listed in planning the various sub-departments

FIGURE III. PHARMACY LAYOUT DETAILS



Equipment and Fixture Lists of the Pharmaceutical Service by Functional Areas

Item	Type	Quality	Size	Material	Quantity	Remarks
Package Dispensing Area						
1. Cabinet	Adj. Shelves Gl. doors	1	48x16x34	M	1	Partition in center Dust top
2. Refrigerator	Biological	1	Large	M	1	
3. Counter	Cab. below	1	30" deep 14'-6" long	M.SS. top	1	Sliding doors
4. Cabinets	Wall hung Fix. shelves	1	3'-6" long 12" deep	M.	4	Sliding glass doors in upper part. Dust top
5. Counter	Cab. below	1	30" deep 36" long 36" high	M.SS. top	4	Sliding doors
6. Cabinets	Wall hung Adj. shelves	1	3'-0" long 12" deep	M.	6	Sliding gl. doors Dust top
7. Double Sink & Cabs.		1	76x30x36 24x21x8 sink	M.SS. top	1	
8. Bottle Rack		1	120 x 48 x 84	M.SS. top	1	High sink
9. Bench	Cab. below	1	48 x 144 x 36	M.SS. top	1	Sl. doors
10. Bench	Cab. below	1	48 x 144 x 36	M.SS. top	1	Sl. doors
11. Typewriter Counter	Drop top	1	24 x 30 x 39	M. Lin. top	1	
12. Shelves	For McCourt Label Cab.	1		M.	1	
13. Cabinet	Adj. open shelves	1	48 x 22 x 84	M.	3	
14. Cart	Portable	1	38 x 21 x 37	SS.	2	
15. Alternate Location of Steno. Desk						
Fillers						As required
Storage Area						
16. Cabinets	Adj. open shelves	1	48 x 22 x 84	M.	14	Dust top
17. Bench	Table	1	36 x 24 x 30	M. SS. top	1	
18. Cabinets	Adj. open shelves	1	48 x 22 x 84	M.	8	Open both sides Dust top
19. Counter	Table	1	60 x 30 x 30	M.SS. top	2	One drawer
20. Counter	Table	1	42 x 30 x 30	M.SS. top	1	One drawer
Kardex Cabinet & Stand for Inventory						
Stainless Steel Foot-Pedal Operated Waste Receptacles						
Manufacturing Area						
21. Mixing & Storage Tank	Portable	1	30 Gal.	SS	2	To be high enough to take 5-gal. carboy
22. Mixing & Storage Tank	Steam jacket	1	30 Gal.	SS	1	To be high enough to take 5-gal. carboy
23. Portable Mixer	For tanks	1		SS	1	
24. Filter	Portable on Wheels	1	6" Model	SS	1	
25. Range	Elec.	1	39x30x36	SS. top	1	4-plate, oven
26. Double sink & Cabinets		1	24x30x36 24x21x10 ink	M. SS. top	1	
27. Counter Knee Space	Drawers Below	1		M. SS. top	2	Knee space
28. Counter	Cab. below	1	36x30x36	M. SS. top	3	Adj. Shelves Sliding door
29. Cabinets	Wall-hung Adj. Shelves		36x12x30	M.	4	Sliding glass doors Dust top
30. Hood	With 8x8x6 Sink	1	36 x 30 x 96	M.SS. Sink	1	Exhaust Vent.
31. Filter Bed	Open	1	54 x 30 x 30	M.	1	4 holes 7" dia. (Provide covers)
32. Dispenser	Paper Towel	1		M.	1	
33. Dispenser	Soap	1		M & Gl.	1	
34. Table	Work Portable	1	43 x 96 x 36	M. SS. top	1	3 drawers each side
35. Bench	Table	1	48 x 24 x 30	M. SS. top	1	
36. Colloid Mill		1			1	
37. Mixer		1	20 Qt.		1	
Fillers as required						

Item	Type	Quality	Size	Material	Quantity	Remarks
Vault						
38. Cabinet	Adj. open shelves	1	48 x 22 x 84	M.	4	Dust top
39. Cabinet	Narcotic	1	48 x 22 x 84	M.	1	Sliding doors with lock. Dust top
40. Medicinal Pump	Locking	1	For 54-gal. Al. drums	M.	2	
Fillers						As required
Grille & Door	Wire mesh Lock		3'-0" door		1	To ceiling
Research Analysis and Control Area						
41. Hood	With 8x8x6 sink	1	36 x 30 x 96	M.SS. Sink	1	Exhaust Vent.
42. Cabinets	Wall hung Adj. shelves	1	48 x 12 x 30	M.	1	Gl. doors Dust top
43. Cabinets	Wall hung Adj. shelves	1	36 x 12 x 30	M.	3	Gl. doors Dust top
44. Counter		1	30" deep	M.SS. top	1	Drawers and knee space below
45. Table	2-Drawer	1	48 x 24 x 30	M.SS. top	1	
46. Cabinet	Adj. shelves	1	48 x 12 x 30	M & Gl.	1	Gl. sliding doors Fluo. lamp below
47. Germicidal lamp	Louver	1		M.	1	
48. Cabinet	Adj. shelves	1	36 x 12 x 30	M. & Gl.	2	Gl. sliding doors
49. Peg Board		1	24 x 24	W	1	
50. Storage Tank	Dist. Water	1	12 gal.	M. & Gl.	1	Connect to still
51. Counter & Sink	Cab. below	1	30" deep 21x18x8 sink	M.SS. top	1	With preparation unit (Fenwal)
Fillers						As required
Special Sterile Solution Area						
Elec. Dry Heat Oven Microscope & Cover Germicidal Lamp					1	
52. Counter	Drawers below	1	48x24x36	M.SS. top	1	
53. Counter	Cab. below Adj. shelves	1	48x24x36	M.SS. top	1	Sliding doors
54. Counter & Sink	Cab. below	1	30" deep 20x18x8 sink	M.SS. top	1	
55. Counter & Double Sinks	Cab. below	1	30" deep 20x18x8	M.SS. top	1	With preparation unit (Fenwal)
56. Still & Storage Tank	Dist. water	1		M.Gl.	1	Complete
57. Storage Tank	Dist. water	1	12 Gal.	M.Gl.	1	Connect to still
58. Cabinets	Adj. shelves	1	84 H 16 D	M.	2	Sliding glass doors
59. Cart	Portable	1	38x21x37	SS.	1	
60. Cabinet	Adj. shelves open	1	36x12x30	M	1	Wall-hung
61. Counter	Cab. below Adj. shelves	1	30" deep	M.SS. top	1	Sliding doors
62. Cabinet	Adj. shelves Wall-hung	1	30" high 12" deep	M. & Gl.	2	Sliding glass doors
Fillers Germicidal Lamp						As required
Special Technic Area						
63. Counter	Cab. below Adj. shelves	1	48x30x36	M.SS. top	2	Sliding doors
64. Counter	Drawers below	1	48x30x36	M.SS. top	1	
65. Cabinets	Wall-hung Adj. shelves	1	48x12x30	M. & Gl.	3	Sliding glass doors
66. Refrigerator	Standard	1	Large	M.	1	Right-hand
67. Still & Stor. Tank	Dist. water	1		M. Gl.	1	Complete
68. Sink		1	Sink 20x18x8	M. SS. top	1	
69. Graduate Drain Rack		1		W.	1	500 cc., 250 cc., 125 cc., 60 cc., 30 cc., 10 cc.

Item	Type	Quality		Material	Quantity	Remarks
		Special Technic Area—continued				
70. Germicidal Lamp Fillers Purdum Soluter & Mech. Agitator	Louver	1		M.	1 1	As required
		Outpatient Dispensing Area				
71. Desk (Steno.)	Sp. L. H.	1-A	45x30x30	M. Lin. top	1	Sled base
72. Chair (Steno.)	SW., Adj.	1-A		M. Pl. S.R.	1	D. S&B
73. Cabinet	Adj. shelves Wall hung	1	42x12x30	M. & Gl.	1	Sliding glass doors Dust top
74. Cabinet	Schwartz	1	24" wide	M.	1	
75. Cabinet	Open Adj. shelves	1	48" wide	M.	1	
76. Counter	Cab. below Adj. shelves	1	36x24x36	M.SS. top	1	
77. Cabinet	Schwartz & Adj. open shelves	1	24" wide	M.	4	
78. Cabinet	Adj. open shelves	1	24" wide	M.	1	McCourt label cabinet
79. Counter	Drawers below	1	30x24x36	M.SS. top	7	
80. Port. Counter	For typewriter	1	24x24x3	M. Lin. top	1	
81. Counter	Drawers below	1		M. SS. top	1	
82. Cabinets	Adj. shelves wall-hung	1		M. & Gl.	1	Sliding glass doors
83. Cabinets	Schwartz	1		M.	2	
84. Counter	Drawers below	1		M. SS. top	2	
85. Counter	Knee space	1		M. SS. top	1	
86. Cabinets	Adj. shelves Wall-hung	1		M. & Gl.	2	
87. Counter Fillers as required	Cab. below	1	48x96x36	M. SS top	1	
		Dispensing and Wrapping Counter Area				
88. Refrigerator	Biological	1	Large	M.	1	
89. Counter	Drawers	1	30" deep	M. SS. top	1	Wrapping paper rack
90. Cart Fillers	Portable	1	38x21x31	SS.	5	As required
		Miscellaneous Items In All Areas				
Stools	Adj. with back	1	15" D.	SS.		
Receptacles	Waste	1	11" D.	SS.		Foot-operated
Flask Ringer						

parations, compounding of special allergy preparations, organic synthesis of chemical medications, and other such activities.

Special Sterile Solutions Area— This space is to be utilized for the manufacturing of extemporaneous parenterals, sterile narcotic solutions, local anesthetics, sterile solutions for wet dressings, and others. The sterilizer planned for installation is to be 24" x 36" high x 48" to allow for the sterilizing of a double layer of solutions at one operation.

Special Technique Area—For the compounding of special preparations such as ophthalmic solutions and others.

Outpatient Dispensing Area—This area is to serve as a pharmacy wherein will be compounded and dispensed individual prescriptions for outpatients. It will be noted that a waiting room is provided adjacent to this area as well as a utility dispensing and wrapping service unit. Direct telephone service will be provided the office of the Chief, outpatient, dispensing, and packaging dispensing areas.

Pharmacy Stores—Pharmacy stores will be kept separate from general store activities. Perpetual inventory records for pharmaceuticals will be under the jurisdiction of the pharmaceutical service. The advantages of this arrangement are: (1) The storage of drugs, many of which deteriorate by improper storage, is placed upon individuals who by their education and training are best qualified to assume this responsibility; (2) Rapid changes in drug therapy trends are immediately known to the pharmacists; (3) Immediate availability and knowledge of supplies to the only department having the authority to use the stock—the Pharmacy Department. This insures more efficient service and lowers the amount

of capital invested in drug supplies. It also couples with the responsibility of maintenance of vital drug inventories, the necessary management companion—accountability; (4) Stock control and inventory cost records being made by the Pharmacy personnel prevent lengthy delays in posting and preparation of requisitions and avoid duplication effort.

Miscellaneous—Swinging, adjustable stools will be part and parcel of working benches. These will swing into knee space and out of sight when not in use. Provisions have been made, either in or adjacent to the department, for toilets, employee lockers, and the disposal of soiled linen.

Demineralized, distilled (for other than parenteral use), hot and cold water, gas, electricity, air and vacuum outlets will be provided in all needed areas. Stills for pyrogen free distilled water as well as facilities for pyrogen testing will also be provided in the department.

CONCLUSION

It is expected that the Clinical Center will be completed in 1952 and patients admitted the early part of 1953. Thus will begin the writing of another chapter in the history of man's attack on the disease groups which constitute major causes of death and disability in the United States. The relationship of physician-pharmacist-patient assumes a special importance when treating and studying patients with long-term illnesses and infectious diseases. The clinical-pharmaceutical research problems that will be encountered in this pharmacy in the allied fields of basic pharmacology, toxicology, posology, pharmacognosy, biochemistry and stoechiometry will be varied. These, along with the general problems of hospital pharmacy management and operation will challenge the ingenuity and resourcefulness of skilled hospital pharmacists.

ACKNOWLEDGEMENTS

The National Institutes of Health gratefully acknowledge the many contributions of individuals of the pharmacy profession who so willingly served as consultants in the planning and designing of this pharmacy. Special mention should go to Mr. John Murphy, chief pharmacist at the Massachusetts General Hospital in Boston, Mr. Don Francke, chief pharmacist of the University Hospital at the University of Michigan, Ann Arbor, Mr. Arthur Dodds, chief pharmacist of the Lynn General Hospital in Lynn, Massachusetts, Mr. Milton W. Skolaut, chief pharmacist at the U. S. Marine Hospital, Staten Island, and former assistant chief pharmacist at Johns Hopkins, Dean H. C. Newton of the Massachusetts College of Pharmacy, Boston, Mr. Grover C. Bowles, chief pharmacist of the Strong Memorial Hospital at Rochester, New York, Dean E. R. Serles of the College of Pharmacy of the University of Illinois, and Mr. Ernest J. Simnacher, chief pharmacist of the U. S. Public Health Service Hospital in Lexington, Kentucky.

REFERENCES

1. Masur, J. and Thompson, N.P.: The National Clinical Center for Chronic Disease Research, *Hospitals 23*:45 (Nov.) 1949.

2. Masur, J. and Werner, J.H.: The Clinical Center of the National Institutes of Health II. Facilities for Food Preparation and Food Service. *J. Am. Diet. Assoc. 27*:2, (Feb.) 1951.

Bottle Filling Head

(*Continued from page 26*)

location of stock container being drawn upon; three feet of tubing is typical. Cut tip of this tubing at an angle to avoid sticking of tube to bottom or sides of stock container. With an additional length of ordinary tubing, attach the vacuum line to a faucet aspirator or vacuum pump (a conventional trap bottle should be used in line if an electric pump is utilized). Only a small vacuum is necessary for good operation. If higher vacuum is used, thick walled tubing should be used throughout. This will be indicated if stock solution container is to be some distance below bottles being filled.

OPERATION

Line up a convenient number of bottles to be filled in rows. Insert tube in stock container. Turn on vacuum. Place head on bottle to be filled. As solution nears the top, break vacuum by tilting the head slightly to one side and pass on to the next bottle.

COMMENT

The dimensions of this head will accommodate standard screw cap bottles from four ounces to one gallon size. Smaller or larger heads can of course be made to satisfy other needs. To avoid dripping of delivery nozzle as head is passed from bottle to bottle, pinch off fluid intake line just above head by bending rubber tube over with the thumb. A small amount of practice will result in dripless and exceptionally rapid filling, even with liquids of high viscosity. To clean, merely flush tubing and head under the warm water tap and wipe dry. A separate tubing should be used for oily liquids. Foaming liquids will cause no problem if a length of tubing is attached to delivery nozzle of sufficient length to reach the bottom of the bottle being filled. Most rapid filling will be accomplished if stock container is about the same level as the bottles being filled.

Photograph shows the awarding of Certificates of Internship in Hospital Pharmacy at the Philadelphia College of Pharmacy and Science. From left to right: Charles Keller of West New York, N.J., Joseph Presto of Naugatuck, Conn., Basil Ketcham of Des Moines, Iowa, Dr. Hayward R. Hamrick, Medical Director, and Herbert L. Flack, Chief Pharmacist, both of Jefferson Medical College Hospital. Extreme right, Dean Linwood F. Tice of the Philadelphia College of Pharmacy and Science.

Opportunities IN HOSPITAL PHARMACY

By HERBERT L. FLACK

THE 1952 graduate in pharmacy has many excellent opportunities available to him in the several branches of his profession. One of the most desirable of these opportunities involves strictly professional activity, and is that of being in a hospital. There are many ways of reaching this highly desirable position, and for the 1952 graduate these fall into two groups, namely, 1) to enroll in a formal program of education and/or practical experience in hospital pharmacy; and 2) to obtain employment for a year or so as a staff pharmacist in a medium or large capacity hospital, under supervision of a chief pharmacist, preferably one who has the "educator concept". For the latter, the 1952 graduate is referred to the regular section of THE BULLETIN, *Positions In Hospital Pharmacy,* for a review of the *Positions Open* information. He might also write to the Division of Hospital Pharmacy, listing his background and request an advertisement be placed in the *Positions Wanted* column.

Certainly the most satisfying and satisfactory, and most rapid method of earning the coveted title of "Director of Pharmacy Service", "Chief Pharmacist", or "Pharmacist - in - Charge" is through medium of the formal programs offering instruction in hospital pharmacy. There are three types of such formal programs, namely, 1) the academic internship program, 2) the non-academic internship program, and 3) the straight academic program without concurrent internship. These programs are defined and elaborated upon in this article. Institutions offering such instruction are listed for each type of program. Additional information regarding each program may be obtained from the individual whose name appears with the listing of the program.

A Pharmacy Internship in a hospital is a period of organized training in a hospital pharmacy whose facilities and personnel for providing such training have been certified by the Division of Hospital Pharmacy of the American Pharmaceutical Association and the American Society of Hospital Pharmacists. Two types of internships are recognized: non-academic and academic. The *Non-Academic Internship* shall be a period of

training of not less than 1920 hours in a hospital pharmacy. The *Academic Internship* shall consist of training of not less than 1920 hours in the hospital pharmacy plus a minimum of one academic year of graduate study in an accredited graduate school associated with a school of pharmacy and leading to the Master of Science Degree.

According to the *Minimum Standard for Pharmacy Internships in Hospitals* "the applicant for an internship shall be a graduate of a school of pharmacy accredited by the American Council on Pharmaceutical Education. The applicant must be of good moral character and in good health.

ENROLLMENT IN INTERNSHIP PROGRAMS

Four institutions offer academic internship programs providing for a maximum of eleven new enrollees each year. Eighteen persons who have completed these programs to date with nine additional people expected to graduate in 1952 and fourteen in 1953 (see Table I).

Two institutions offer graduate work in hospital pharmacy without an internship program. Thirteen persons have graduated from this type program to date with five additional persons expected to graduate in 1952 (see Table II).

Approximately twenty persons per year can be accommodated in non-academic type internship programs (see Table III). There have been sixty-two persons complete this program to date with nine more expected to complete in 1952.

GRADUATE ANNOUNCEMENTS

The following are illustrations of formal announcements of academic internship programs for the current year:

THE JOHNS HOPKINS HOSPITAL

The Johns Hopkins Hospital, in cooperation with the Graduate School and the School of Pharmacy of the University of Maryland, announces that internships in pharmacy are open to a number of 1952 or other recent graduates of recognized schools of pharmacy. Appointments are for a period of twenty-two months beginning September 1, 1952. During twenty months, interns devote one-half time to hospital pharmacy training and one-half time to graduate study. Full time training in the hospital pharmacy is required for two months during the summer of 1953. Four weeks of vacation are allowed during the term of the appointment. Upon satisfactory completion of the internship and the course of study. Master of Science degrees are conferred by the University of Maryland and Certificates of Internship are awarded by The Johns Hopkins Hospital.

An allowance of $150 per month is provided by the hospital. The University of Maryland makes a reduction of 25% in tuition fees. Complete information regarding fees and curricula appears in the catalog of the School of Pharmacy, copies of which may be secured by sending requests to the School of Pharmacy, University of Maryland, 32 South Greene Street, Baltimore 1, Maryland.

Interns are required to rent rooms at the hospital. Meals may be purchased for a nominal sum in the hospital dining rooms.

Opportunity is offered for well-rounded practical experience in hospital pharmacy administration, pharmaceutical manufacturing, dispensing, and in the preparation of sterile solutions and other sterile products.

Applicants should submit a statement giving full details as to date and place of birth, citizenship, marital status, education and pharmaceutical experience together with a small, recent photograph. An official transcript of the applicant's college record is required. The applicant should ask the dean of his college to write to the Director giving his estimate of the applicant's personality and fitness.

Applications for admission to this joint program should be forwarded to Edwin L. Crosby, M.D., director, The Johns Hopkins Hospital, Baltimore 5, Maryland not later than April 1, and appointments will be announced on May 1, 1952.

PHILADELPHIA COLLEGES RENEW OFFER OF ACADEMIC INTERNSHIP IN HOSPITAL PHARMACY

The Philadelphia College of Pharmacy and Science, the Jefferson Medical College of Philadelphia, and the Jefferson Medical College Hospital again announce a cooperative program of graduate study and internship in hospital pharmacy.

Applicants must possess the Bachelor of Science

for 1952 pharmacy graduates

in Pharmacy degree and possess grades acceptable to the Graduate Committee. Combined instruction and internship will be for a period of approximately twenty-one months, with appointments beginning on August 8, 1952 and running through June 30, 1954. Upon satisfactory completion of this period of study and training, students will be awarded the degree of Master of Science in Pharmacy, a certificate of internship, and will be certified as competent to assume charge of a hospital pharmacy.

The student will receive lecture and laboratory instruction at both the Philadelphia College of Pharmacy and Science and the Jefferson Medical College in such graduate level courses as Hospital Pharmacy Administration, Seminar, and Survey: Pharmacology; and Biochemistry, and will be allowed certain electives. He will major in Hospital Pharmacy with a recommended minor in Pharmacology. He will be required to pursue supervised research studies at these institutions.

The student will be encouraged to attend one of the annual hospital pharmacy institutes and the annual convention of the American Society of Hospital Pharmacists. He will be required to attend various pharmaceutical and medical meetings held in the Philadelphia area. His work will be scheduled so as to permit access to the several staff conferences held at the Jefferson Medical Center. He will attend the regular conferences of the Pharmacy staff.

The student will receive the equivalent of a twelve month internship at the Jefferson Medical College Hospital, under supervision of Herbert L. Flack, chief pharmacist, receiving instruction in the several divisions of the Pharmacy, to provide complete and well-rounded experience in the functioning of the modern hospital pharmacy. He will have the opportunity to serve as an observer in the several hospital departments with which the Pharmacy has contact, so that upon completion, he should be familiar with hospital organization and with the relationship of the pharmacy to the medical staff and to over-all hospital activities. He will assist in the preparation and presentation of lectures in pharmacology to student nurses.

An unusual feature of the instruction in hospital pharmacy is the course, Hospital Pharmacy Survey, in which the interns, under supervision of the chief pharmacist, make field trips to visit hospital pharmacies and manufacturing concerns whose products and processes are pertinent to the subject of hospital pharmacy. Following each trip, a critical report of the observations of the student is required. Thus the interns have the opportunity to see pharmacies of all sizes and types in action. Another feature of this Survey, has been to allow the intern to work for periods of several days in some of the outstanding hospital pharmacies.

The tuition and fees approximate $340 for this program. Complete maintenance will be furnished by the hospital and an allowance of $50.00 per month will be paid each student during the academic year. This stipend will be increased to $100.00 per month during the summer months. A one-month vacation period will be allowed if requested.

All candidates wishing to make application, or desiring further information for graduate study in hospital pharmacy, should write to the Secretary of the Graduate Committee, Philadelphia College of Pharmacy and Science, Philadelphia 4, Pennsylvania, for the necessary application form. This form, together with a transcript and three letters of recommendation should be returned not later than April 1, 1952. Appointments will be announced on May 1, 1952.

OTHER SCHOOLS

It is possible that the following schools may offer graduate instruction in hospital pharmacy leading to the Master of Science degree without an internship, however, no formal announcement has been made to date. Further information may be obtained by corresponding directly with the person indicated.

Dr. Troy Daniels, University of California School of Pharmacy, San Francisco, 22 California

Dr. E. E. Leuallen, Columbia University College of Pharmacy, West 66th Street, New York City, N.Y.

Dr. E. A. Brecht, University of North Carolina School of Pharmacy, Chapel Hill, N.C.

Dr. B. V. Christensen, Ohio State University School of Pharmacy, Columbus 10, Ohio

Dr. Elmer M. Plein, University of Washington College of Pharmacy, Seattle, 5, Washington

INTERN APPOINTMENTS

In accordance with recommendations of the Committee on Education of the American Society of Hospital Pharmacists the institutions offering an academic internship are cooperating in an effort to avoid duplication of acceptances for the respective programs, and to provide the opportunity for an applicant accepted by two institutions to select between the two institutions accepting him, rather than accepting the first appointment that is confirmed. Thus it is necessary that all applications to be considered must be completed by April 1, 1952. Simultaneous announcements to the respective programs will be made by telegram on May 1, 1952. Alternate choices are to be informed by telegram on May 5, 1952.

TABLE I. INSTITUTIONS OFFERING AN ACADEMIC INTERNSHIP IN HOSPITAL PHARMACY

SCHOOL AND HOSPITAL	ADDRESS FOR CORRESPONDENCE	DURATION OF COURSE		NUMBER OF INTERNS PER YEAR	NUMBER OF GRADUATES TO DATE	REMUNERATION
		DATE	TOTAL TIME			
State University of Iowa College of Pharmacy — State University of Iowa Hospitals	Louis C. Zopf State Univ. of Iowa College of Pharmacy Iowa City, Iowa	Sept. 1, 1952 to June 30, 1954	22 mos.	2	2	$1200 per year; no maintenance
University of Maryland School of Pharmacy — Johns Hopkins Hospital	Dr. Edwin L. Crosby, Johns Hopkins Hospital Baltimore 5, Md.	Sept. 1, 1952 to June 30, 1954	22 mos.	2	7	$150 per mo. plus 25% reduction in fee at University; no maintenance
University of Michigan College of Pharmacy — University Hospital	Don E. Francke University Hospital Ann Arbor, Mich.	Sept. 1, 1952 to June 30, 1954	22 mos.	4	3	$1400 first year $1520 second year
Philadelphia College of Pharmacy and Science — Jefferson Medical College Hospital	Secretary, Graduate Committee Philadelphia College Pharmacy and Science Philadelphia 4, Pa.	Aug. 18, 1952 to July 1, 1954	Approx. 22 mos.	3	6	$800 per year plus complete maintenance and 33% reduction in tuition fee.

TABLE II. INSTITUTIONS OFFERING A MASTER OF SCIENCE DEGREE WITH SPECIALIZATION IN HOSPITAL PHARMACY WITH NO INTERNSHIP

SCHOOL AND ADDRESS	DURATION OF COURSE	NUMBER OF GRADUATES TO DATE	REMUNERATION
Louis C. Zopf College of Pharmacy State University of Iowa Iowa City, Iowa	One academic year	4	
*Dr. Glenn L. Jenkins School of Pharmacy Purdue University West Lafayette, Ind.	Two academic years with teaching assistantships	9	Teaching assistantships $1500 to $1800 per year, plus remittance of all fees except $30 per semester
Dr. Louis Busse School of Pharmacy University of Wisconsin Madison, Wisc.	Two academic years	0	Teaching assistantships at approximately $90 per month

*The graduate instruction leading to the Master of Science degree with a major in hospital pharmacy is offered for those pharmacists who have been in hospital practice, or for those who expect to enter hospital work. Students majoring in hospital pharmacy take a course in hospital administration and practice, manufacturing pharmacy, and minor work in areas such as pharmacology and pharmaceutical chemistry.

TABLE III. INSTITUTIONS OFFERING A NON-ACADEMIC FORMAL INTERNSHIP

INSTITUTION	NUMBER OF INTERNS TO DATE	NUMBER ACCOMMODATED PER YEAR	REMUNERATION
Duke University Hospital Durham, N.C. I. T. Reamer	20	2	$2040 per year complete room, board and laundry.
Freedman's Hospital Washington, D.C. John S. Mitchell	2	2	$100 per month
Greenwich Hospital Assoc. Greenwich, Conn. Frank J. Steele	0	1	$40 per week
Mercy Hospital Toledo, Ohio Sister Mary John	8	2	$225 per month; time allowed for college work if desired.
Queen of Angels Hospital Los Angeles, California Sister Mary Junilla	6	2	$140 per month for 40 hour week
Saginaw General Hospital Saginaw, Michigan Miss Jennie Banning	1	1	Open
St. Clare's Hospital New York 19, New York Sister Mary Donatus	0	2	$125 per month
St. Luke's Hospital Cleveland 4, Ohio Mrs. Evlyn G. Scott	11	4	$50 per month, *complete* maintenance and insurance.
St. Mary's Hospital 1298 St. Mark's Avenue Brooklyn, New York Sister Mary Etheldreda	3	1	$150 per month, 1 meal daily, laundering of uniforms.
University of Calif. Hosp. San Francisco, California Jerome M. Yalon	12	3	

THERAPEUTIC TRENDS

New trends in medicine and pharmacy include MILANTIN—TOPICAL CORTISONE FOR ASTHMA—NEOSUPREL—I.V. PROCAINE—HPC—ASCORBIC ACID FOR BURNS

METHYLPHENYLSUCCINIMIDE IN PETIT MAL EPILEPSY

Methylphenylsuccinimide which was developed by Parke, Davis and Company and trademarked Milantin is said to equal or surpass in therapeutic efficiency other drugs used in petit mal epilepsy and yet be relatively nontoxic according to a report in *Arch. Neurol. Psychiat. 66*:156 (August) 1951. Both animal studies and a study of 50 cases of petit mal epilepsy indicates that Milantin is much more active than trimethadione (Tridione). It also proved more efficacious in that group of cases in which standard medicaments gave only indifferent to fair results.

Complete control of seizures was obtained for a period of from four to thirty-one weeks in 30 percent of the fifty cases on an average daily dose of 2.4 Gm. Practical control of 90 percent reduction in seizures below the pre-experimental period was obtained in 30 percent of the cases and 32 percent of the cases showed a reduction in attacks of 50 percent. Eight percent were not helped at all.

The average daily dose to produce maximal effect was 2.4 Gm in units of 0.3 Gm. capsules but as much as 3.0 Gm. had to be used in some cases. There was little relation between dose and age.

Signs of toxicity were much less disturbing than those commonly seen with trimethadione and less frequent. Some toxic signs which did appear and which seemed to be based on an individual idiosyncrasy to the drug are nausea dizziness, drowsiness, vomiting, headache, and a dreamlike state.

TOPICAL CORTISONE IN BRONCHIAL ASTHMA

Since the topical application of cortisone had previously been reported to cause a regression of allergic edema of the mucosa of the nose and paranasal sinuses, an attempt was made to topically apply it to the bronchial mucosa by special technics in eight cases of intractable bronchial asthma. The report of 50 to 100 percent relief for periods averaging two weeks to four months appeared in the *J. Allergy 22*:518 (November) 1951. The applications were first made by a cannula technic by which the patient was premedicated with 50 mg. of Seconal. Anesthesia of the pharynx, larynx and trachea was obtained with one percent Pontocaine. Twenty-five mg. of cortisone mixed with 2.5 ml. of water were instilled into the trachea with a Luken's cannula. Since it was thought that a better and deeper distribution of cortisone would be more effective, a special bronchoscope technic was used. The patient was pre-medicated with 0.1 Gm. of sodium pentobarbital and 0.4 mg. of atropine sulfate. Ten percent cocaine in 1:1000 epinephrine solution was applied topically to anesthetize the pharynx and larynx. Four cc. of 4 percent cocaine in saline were instilled intratracheally. The bronchoscope was inserted, through which 50 mg. of cortisone in 8 ml. of saline was administered, half the solution being instilled into each main stem bronchus.

From the studies it seems plausible that cortisone has a local effect at the tissue level although an optimum dosage and optimum frequency of application is to be sought.

NEOSUPREL

Neosuprel is a new sympathomimetic amine with the formula 1-(3,4-dihydroxyphenyl)-2-isopropyl-amino-1-butanol hydrochloride. Sympathomimetic amine aerosols for use in the management of patients with bronchial asthma must be good bronchodilators, but which have no adverse effect on the heart such as palpitation, tachycardia and tremor. Neosuprel has less bronchodilator activity than does Isuprel, but possesses much less cardiovascular stimulation properties as reported in the *Ann. Allergy 9*:769 (November-December) 1951.

Neosuprel was tried clinically by inhalation in a group of twenty-six patients with severe chronic bronchial asthma in concentrations of 1.75 and 2.5 percent. More prolonged bronchodilator activity was commonly reported than with 0.5 percent

Isuprel, however, patients not uncommonly objected to the disagreeable taste of Neosuprel.

None of the patients exhibited side effects of the use of Neosuprel, in fact, six patients with hypertension as well as bronchial asthma in whom Isuprel regularly induced palpitation, did not experience this reaction with Neosuprel.

Neosuprel seems to exhibit no effect when given in 10 mg. tablets. The material for investigation was supplied by Winthrop-Stearns, Inc.

I.V. PROCAINE HYDROCHLORIDE

Procaine may be added to whole blood to prevent venospasm and to obtain more rapid administration of the blood according to a report in the *N. Y. State J. Med. 51*:2520 (Nov. 1) 1951. The material is particularly useful when refrigerated blood is used since the procaine will relieve constriction of the vein which is often caused by the administration of cold blood. This is most likely to occur when using the leg veins for transfusion. By this method it is possible to administer 500 cc. of blood in less than thirty minutes. The amount of procaine added would depend somewhat upon the amount of blood being given. The author used as much as two grams in the form of the hydrochloride for transfusing 6,000 cc. of blood.

ANTI-RHEUMATIC EFFECTS OF HPC

The anti-rheumatic effects of 3-hydroxy-2-phenylcinchoninic acid (HPC) appear to be as great as that of colchicine and often better tolerated according to a report in the *Am. J. Med. Sci. 222*:523 (November) 1951.

In a series of twenty patients, four were treated for gout, ten for rheumatoid arthritis and six for rheumatic fever. The drug was given in doses varying from 20 to 40 mg. per kg. of body weight daily in three divided doses. Of the patients with gouty arthritis, all improved markedly, three within 24 hours of the first dose. Among the patients treated for rheumatoid arthritis, improvement in two cases was marked, mild in five and absent in two. In one case the condition became worse. In all cases of rheumatic fever the temperature dropped to normal and the joint pains and swelling subsided within two to five days.

ASCORBIC ACID IN BURN THERAPY

According to a report in the *N. Y. State J. Med. 51*: 2388 (October 15) 1951, ascorbic acid may be used successfully either topically, orally or parenterally in the treatment of burns. It is claimed that the material is capable of alleviating pain in minor burns, hastening the healing period, aiding in combating the accumulation of toxic protein metabolites in the severely burned, and reducing the time interval necessary for skin grafting.

Ascorbic acid was first used on the assumption that the manifestations observed in the burned patient were probably due to an overabundance of histamine and histamine-like substances in the tissues as toxic protein metabolites. Since one of the physiologic actions of ascorbic acid is to maintain vascular tone, especially of the vascular endothelium, it was used to successfully counteract the toxic actions of these histamine-like substances, both experimentally in animals and in sixty-two clinical cases. The clinical cases ranged from mild to severe types and were caused by various agents such as hot water, hot grease, gasoline explosions, chemical agents, etc.

Topically the vitamin was used both as a one percent solution in normal saline and as a two percent ointment in washable base. One or the other of these forms of medication was used during the first forty-eight to seventy-two hours following the initial burn, providing there was no immediate necessity to institute shock therapy. The solution particularly seems to bring about almost immediate alleviation of pain thus bringing down to a minimum the use of morphine.

The use of the two percent ointment in moderately and severely burned areas reduced the time interval necessary for skin grafting by producing a healthy granulation tissue bed and by keeping local edema to a minimum. When there was marked sloughing of the wound, a 0.5 to one percent acetic acid solution or a solution of 1,000 units of penicillin per cc. of normal saline was used daily in conjunction with the ascorbic acid ointment dressings.

In addition, as a part of the general supportive treatment in moderate and severe burns, ascorbic acid was given either orally or parenterally in doses ranging from 300 to 2,000 mg. daily in adults and 300 to 900 mg. daily in children. At no time were deleterious effects from the drug observed.

Although the ascorbic acid may be used to alleviate pain and hasten healing in minor burns, to aid in combating the accumulation of toxic protein matabolites, and to lessen the need for extensive supportive therapy, it does not eliminate the need for such immediate supportive therapy as adequate fluid needs of the body, replacement of losses of sodium and potassium ions, electrolytes, and acid-base balance which are so vitally important in the treatment during the acute phase of a burn.

TIMELY DRUGS

AUREOMYCIN NASAL . . . is now available from Lederle Laboratories for use as a nasal decongestant and to provide symptomatic relief in conditions associated with congestion and inflammation. Aureomycin Nasal is supplied in packages consisting of one vial of aureomycin hydrochloride 10 mg. together with one vial of diluent containing 0.5 percent Paredrine (hydroxyamphetamine SKF). This makes a solution containing 1 mg. of aureomycin per cc.

* * *

AUREOMYCIN VAGINAL . . . is now available from Lederle Laboratories in two forms for vaginal use. Aureomycin crystalline vaginal powder and Aureomycin vaginal suppositories are indicated in the treatment of trichomonas vaginitis and for the treatment of certain gram-positive and gram-negative infections of the vagina and vaginal introitus. In addition they may be used as adjuvants to oral therapy in lymphogranuloma venereum and granuloma inguinale.

Each gram of Aureomycin Vaginal powder contains 200 mg. of aureomycin hydrochloride with 8 percent methylparaben and 2 percent propylparaben, and talc. The powder is packaged in vials of 5 grams.

Each Aureomycin Suppository contains 250 mg. of aureomycin hydrochloride with 200 mg. of methylparaben and 50 mg. of propylparaben in a readily dispersible base.

* * *

DESOXYN AND NEMBUTAL . . . is Abbott Laboratories new combination employing its Desoxyn (methamphetamine) and Nembutal (pentobarbital sodium). This combination of a central nervous system stimulant with a central nervous system depressent is indicated in a wide range of psychiatric states ranging from mild emotional disturbances to major neuroses. It is also useful for symptomatic relief in convalescence and in prolonged illness in which recovery is hindered by a sense of fatigue, nervous tension, or fear. Its use also finds a place in the management of obesity when the patient is restless or tense.

Desoxyn - Nembutal capsules (green color) contain 5 mg. of Desoxyn and 30 mg. of Nembutal. The recommended dose is one capsule before breakfast and another one hour before lunch. A third capsule may be taken in midafternoon if needed. The combination is supplied in bottles of 100 or 1000 capsules.

* * *

DURYCIN . . . is Eli Lilly Company's name for its new product containing penicillin and dihydrostreptomycin. The product is available in one-dose rubber stoppered ampuls and contains 300,000 units of crystalline procaine penicillin-G; 100,000 units of crystalline buffered penicillin-G sodium; and the equivalent of 0.5 gram of dihydrostreptomycin base as dihydrostreptomycin sulfate. It is prepared for administration by adding 1.2 cc of aqueous diluent to the contents of the ampul. Durycin is especially useful in treating infections of the urinary tract, bacterial endocarditis, and as a prophylactic and therapeutic measure in surgical cases.

* * *

NEMBUTAL AND BELLADONNA ELIXIR . . . is now available from Abbott Laboratories in a mint-green, spice-flavored vehicle. It is indicated for use as a sedative and antispasmodic in the treatment of hyperactivity of the gastric cardia, pylorus, bile duct, colon, or ureter. Each teaspoonful contains Nembutal Sodium 15 mg. and belladonna extract 10 mg. The product is compatible with codeine phosphate and sulfate, papaverine hydrochloride, chloral hydrate, methadone, Vi-Daylin, Surplex Ferrous, Duozine Suspension and other preparations. It is available in pints and gallons.

* * *

PAVERIL PHOSPHATE . . . is a synthetic analogue of papaverine available from Eli Lilly Company. While Paveril phosphate possesses the vasodilator properties of papaverine, it is not classified as a narcotic drug. Papervil phosphate is recommend-

ed for the treatment of conditions such as vascular spasm associated with coronary occlusion, angina pectoris, peripheral and pulmonary embolism, and peripheral vascular disease in which there is a spastic element.

Although Paveril has essentially the same vasodilator potency of papaverine, it is only one-third as toxic. Since it cannot be made from opium it is not subject to the Harrison Law. Paveril phosphate is supplied in 0.1 gram tablets (No. 1781) and 0.2 gram tablets (No. 1728) in bottles of 100, 500, and 1000.

* * *

PERIHEMIN . . . in liquid form is now available from Lederle Laboratories. Perihemin Liquid contains 1.65 grams ferrous gluconate, 9 mg. of folic acid, 99 micrograms of vitamin B_{12}, 0.99 grams of powdered stomach, 2,175 grams of soluble liver fraction, and 10 percent alcohol in each 30 cc. The product is indicated in the treatment of common hypochromic and hyperchromic anemias. It is packaged in pint bottles.

* * *

PRENALAC . . . or Prenatal Nutritional Supplements is a formulation containing vitamins and minerals in the exact proportions recommended by the National Research Council, plus liberal amounts of vitamin B_{12} and folic acid. This product, supplied by Eli Lilly Company, is marketed in dual colored, pink and blue, capsules in packages of 100, 500, and 1000 pulvules (No. 324).

* * *

TRYPTAR . . . a highly purified crystalline trypsin derived from mammalian pancreas glands, is now available from Armour Laboratories. Tryptar is indicated in the debridement of necrotic tissue wherever it exists. It does not affect normal tissue. After application Tryptar enzymatically digests non-viable cells and tissues attacking proteins, denatured proteins, true peptones, mucin, fibrin and protein split products and converting them to small polypeptides and amino acids. Its chief therapeutic applications have been for general surgical use on amputation stumps, in osteomyelitis, ulcers, soft tissue abscesses, second and third degree burns, and hematomas; as well as for intrapleural use in tuberculous empyema, mixed empyemas, and post-operative or post-traumatic fibrothorax.

Tryptar solution is relatively unstable and 75 percent of its activity is dissipated within 3 hours. In the dry form it is stable indefinitely at room temperature. Thus solutions should be freshly prepared. Tryptar has its greatest activity at *p*H 7.1 and a Tryptar Diluent (Sorensen's Phosphate Buffer Solution) is supplied. Tryptar is contraindicated for intravenous use, in acute yellow atrophy, and in advanced cirrhosis.

Tryptar may be applied by several methods:

1. The powder may be applied directly to the area to be treated either by sprinkling it directly on the wound or by spraying it on with a Devilbiss powder blower number 119 for which a plastic adapter is supplied. This is the method of choice whenever the wound is moist and easily accessible. The enzyme should be applied frequently since it is constantly inactivated by trypsin inhibitors present in serum. Minor local stinging may result after direct application.
2. For treating sinus and fistulas, Tryptar solution may often be used by irrigation. In cases where the area is plugged with necrotic tissue, the Tryptar powder can be made up in a series of small gelatin capsules and these inserted in the sinus or fistula. The capsule will dissolve in the body fluids and release the trypsin.
3. When used as a wet dressing 250 mg. of Tryptar is added to 25 cc. of Tryptar Diluent and applied to the wound using sterile gauze sponges. When this method is used the solution should be freshly prepared immediately before use and should be applied every 3 hours. Alternatively additional dry powder may be added to the moist area.
4. In abscess cavities, sinuses, and fistulas Tryptar solution can be instilled under gentle pressure from a hypodermic syringe or through a catheter. In the treatment of burn eschars the Tryptar solution should be infiltrated directly underneath the eschar membrane, avoiding injection into normal tissue. Tryptar is not effective against the burn eschar itself but it will effect cleavage between the eschar and the underlying viable tissue.
5. Since intrapleural or hypodermic administration of Tryptar produces a histamine-like effect, this must be protected against by giving the patient an average dose of Benadryl or Histadyl one hour prior to the injection of the enzyme. Tryptar solution is used for intrapleural administration after aspiriation, and irrigation of the intraplural space. Also the patient should be given an antihistamine drug every 3 hours and should be instructed to turn frequently in bed and change his position from time to time. Irrigations with freshly prepared Tryptar solutions should be done once or twice daily, after prior irrigation with sterile normal saline, until the aspirated fluid becomes clear and straw colored.

Tryptar is supplied as a two vial preparation. One vial contains 250 mg. (250,000 Armour units) trypsin while the other vial contains 30cc of Tryptar Buffer Solution.

Notes and Suggestions

by JOHN A. SCIGLIANO

YELLOW FEVER VACCINE

Many inquiries concerning the description and the source of supply of yellow fever vaccine have been directed to the pharmaceutical service of our hospital. Only recently an inquiry was directed to the editor of a section called "Prescription Problems" in a national drug journal; this prompts the following data on yellow fever vaccine.

The vaccine is a live culture of modified yellow fever virus which, while no longer producing yellow-fever, retains its power to stimulate antibody production. The vaccine is dried and sealed under nitrogen in a glass ampul. It should be stored continuously in the freezing unit of a refrigerator or its equivalent, at which below-freezing temperature it will keep at least twelve months.

Administration of the Vaccine.—Draw into a sterile needle and syringe of a suitable size the volume of sterile normal saline shown on the label of the ampul. Then open the vaccine-containing ampul and carefully mix the vaccine and the diluent until all has been drawn into the syringe and is in a uniform suspension. Administer the single immunizing dose of 0.5 cc. subcutaneously at once.

Precaution.—Do not remove the vaccine from freezing until ready to administer. Add diluent at once and inoculate promptly. Liquified vaccine must be used within one hour following addition of diluent. Keep liquified vaccine cool. A permanent record of each person vaccinated, including lot number of vaccine employed, should be kept.

Immunity Response.—In case of reactions developing, treatment should be symptomatic. Immunity develops by the 7th day and probably holds from 4 to 6 years. Revaccination should be conducted at least every four years.

Request for Vaccine.—The vaccine is prepared in 5, 20, and 100 dose ampuls. Requests should be directed to the Director, Rocky Mountain Laboratory, Hamilton, Montana. Use vaccine only if shipping case still contains some dry ice on receipt. In cities where there is a U. S. Public Health Hospital or an Outpatient Clinic the patient goes directly to the installation and receives the vaccination free-of-charge. Where the vaccine is obtained from the Rock Mountain Laboratory, the only cost involved is the transportation charges.

JOHN A. SCIGLIANO, PH.D. is chief of the pharmaceutical service, U. S. Public Health Service Hospital, Baltimore, Maryland.

METHYL CELLULOSE

Methyl cellulose solutions have great application in the following situations: (1) in replacing the deficient tear secretions of the aged, (2) as a protective medication for various pathologic conditions of the cornea, and (3) in the post-nucleation socket as a lubricant for the prosthesis.

To prevent disturbance of the fluid balance in the tissues, concentration of salts in collyria should equal that which is present in eye fluid. In other words, the collyria must be isotonic with the tissues. The large methyl cellulose molecule exerts practically no osmotic pressure and the use of sodium chloride in the form of isotonic sodium chloride solution is adequate; at times, however, it is necessary to use a buffer pair as the Hind and Goyan's phosphate buffer or Feldman's solutions for adjusting to a *p*H of 6.8. The normal *p*H range of tears being 5.2 to 8.35, *p*H 6.8 being the mean value. Besides these two factors, collyria must present a viscosity suitable to maintaining the medication in contact with the cornea for a longer period of time, when this is desired.

The E.E.N.T. Service finds the following formulas to satisfy the requirements embodied in the above paragraph:

COLLYRIA VEHICLE FOR ALKALOIDAL SALTS

Methyl Cellulose, 4000 cps	0.33 Gm.
Sodium Chloride	0.45 Gm.
Hind and Goyan's Phosphate Buffer	50.0 cc.
Benzalkonium Chloride, USP 1:25,000 Solution to make	100.0 cc.

This may be used as a vehicle for alkaloidal salts used in Ophthalmology.

CONTACT LENS SOLUTION

Methyl Cellulose, 4000 cps	1.0 Gm.
Feldman's Solution, Buffered to *p*H 7.8, to make	100.0 cc.

The method of preparation of methyl cellulose

solutions involves heating 1/3 of the total volume of solvent to about 70° C. The methyl cellulose is allowed to soak in this for 30 minutes. The remainder of the solvent is added after it has cooled to 4° C.

To expedite dispensing extemporaneous collyria, a stock solution of 2 percent is prepared by the above method and stored in the refrigerator at 5 to 10° C. The viscosity of this solution is 1500 cps.

DIETHYLSTILBESTROL PELLETS

Pellets of androgens for subcutaneous implantation are available commercially. However, there are none available of diethylstilbestrol except for veterinary use and these are of relatively low potency. I would like to describe here a technic which is used for preparing diethylstilbestrol pellets used for surgical implantation by the Tumor Clinic of our hospital.

Melt approximately 1 gram diethylstilbestrol by placing it in a beaker which is immersed in an oil bath. Bring the temperature of the oil bath to between 169° and 190° C. Draw the melted diethylstilbestrol about 2 cm. up in a Westergren Sedimentation Rate tube (soft glass) by means of a stainless steel plunger. The circumference and diameter of the plunger of such dimensions that when inserted into the tube it can function as a syringe. The diethylstilbestrol hardens immediately. Eject the diethylstilbestrol from the tube, heating the tube if necessary over a small bunsen flame. Place these pipes in a petri dish, cover and allow to stand until the next day. Ether may be used to clean the tube and plunger on occasion if needed. Do not handle any crystals or fragments of the diethylstilbestrol which may flake off during this procedure. The next day, the 2 cm. pipes are placed on a clean white towel and cut into approximately 5 mm. (3/16 inch) lengths by gently rolling against a razor blade. This makes pellets weighing between 20 and 30 mg. Wash each pellet in 95 percent ethyl alcohol, dry and weigh.

Next place the pellets, individually wrapped in gauze, in agglutination tubes or small test tubes, labeled with weight and date. Place two pellets in each tube, total weight of both to equal 50 mg. Sterilize by autoclaving at 25 pounds pressure for 25 to 30 minutes or by dry heat at 130° C. for four hours. The sterile pellets of diethylstilbestrol are now ready for surgical implantation.

The diethylstilbestrol powder may be obtained from Merck and Company, Rahway, New Jersey at a cost of $0.52 per gram in lots of 5 gram or $0.46 per gram in lots of 25 gram.

BACITRACIN CREAM

The Dermatology Department of your hospital may desire a water soluble base for the topical application of bacitracin. The Staten Island and the Baltimore U. S. Public Health Service Hospitals have found the formula below to be more suitable than one containing anhydrous lanolin and petrolatum.

BACITRACIN CREAM

*Bacitracin powder (48.4 units/mg.)	5.165 Gm.
Hydrophilic Ointment, USP	375.0 Gm.
Distilled Water	125.0 cc.

Triturate the powder to a soft paste with the water and then gradually incorporate the hydrophilic ointment with spatulation on an ointment slab.

Prepare one or two weeks supply at a time and keep stock in the refrigerator. When kept under refrigeration, the shelf life of the preparation is about 14 days. The prescription label should carry the "Keep in Refrigerator" legend. When kept at room temperature for 3 days or more, a strong odor develops in the cream and should not be used.

EYE SOLUTION FORMULAS

Each cc. of the following solution will contain 2.5 mg. of chloramphenicol and 6 percent Polysorbate 80. The chloramphenicol may be taken from a capsule.

CHLORAMPHENICOL OPHTHALMIC SOLUTION 1%

Chloramphenical	0.25 Gm.
Polysorbate 80 (Tween 80)	1.5 cc.
Sterile distilled water, to make	25.0 ccc.

Mix the chloramphenicol with the Polysorbate 80 and then add the distilled water.

The following formula provides a cortisone ophthalmic solution which need not be refrigerated.

CORTISONE OPHTHALMIC SOLUTION

Cortisone acetate	0.5 Gm.
Sodium Carboxymethylcellulose	0.6 Gm.
Polysorbate 80 (Tween 80)	0.4 Gm.
Chlorobutanol	0.5 Gm.
Sodium Chloride, ACS	1.3 Gm.
Distilled water, to make	100.0 cc.

Dispense in 7.5 cc. dropper bottles.

*Bacitracin powder may be obtained from Commercial Solvent Corporation, Terre Haute, Indiana in multiples of 100 Gm.

CURRENT LITERATURE

Edited by SISTER MARY ETHELDREDA, *St. Mary's Hospital, Brooklyn, N.Y.*

AMERICAN PROFESSIONAL PHARMACIST

OCTOBER, 1951—"State Inspection of Hospital Pharmacies", by J. Harold Jones, Pharmaceutical Inspector, Indiana State Board of Health. A very interesting exposition of conditions found in several Indiana hospitals which were inspected for pharmaceutical services and practices as set forth in the general state regulations. *page 924*

NOVEMBER, 1951—"Pharmacy—As a Way of Life". An editorial profile on the first hospital pharmacist to become president of the American Pharmaceutical Association—Mr. Don F. Francke. *page 1022*

DECEMBER, 1951—"An Unusual Hospital and Clinic Pharmacy," by E. B. McCrady, Pharmacist, Ohio State University, Columbus, Ohio. College of Veterinary Medicine. A discussion of one of the few hospital pharmacies in the country whose activities are organized solely to provide drug and allied services for the treatment of animals. *page 1110*

HOSPITAL MANAGEMENT

OCTOBER, 1951—"Hospital Pharmacists Hear Panel Discuss Drugs in the Hospital Budget" by Mrs. Jane L. Rogan. A summary of the program of the Convention meeting of the American Society of Hospital Pharmacists held in Buffalo, New York. *page 102*

DECEMBER, 1951—"Increasing Hospital Revenue to Meet Rising Costs," by Sr. Mary Blanche Welch, R.S.M., St. Rita's Hospital, Lima, Ohio. The position of the hospital pharmacy in an economy program is included. *page 37*

"Essential Business Records for the Pharmacy" by Joe Vance, Chief Pharmacist and Assistant Administrator, South Highlands Infirmary, Birmingham, Alabama. A discussion of essential records divided into two categories—Part One—consisting of records which the pharmacist himself may need for assistance in the details for the operation of the pharmacy; Part Two—composed of those records which report the condition of the pharmacy department to the administration of the hospital. *page 78*

HOSPITALS

DECEMBER, 1951—"Medical Notes and Comment" Comment on the effectiveness of Terramycin in Meningitis and the use of propylene glycol as a substitute for glycerin. *page 120*

HOSPITAL PROGRESS

"Advancement Always Takes Effort" by Sister Mary Carl, O. P. An editorial on the improvement of hospital pharmacy professional status. *page 353*

"Practical Spirituality for Pharmacists" by Rev. John B. Fee. An inspiring presentation of a lofty ideal every pharmacist should try to attain. *page 46A*

MODERN HOSPITAL

DECEMBER, 1951—"The Pharmacist is Worthy of His Hire" by Alex M. Milne. An excellent presentation of the extent and value and also importance of the professional services which a pharmacist renders to the hospital. *page 96*

"Biological and Therapeutic Effects of ACTH and Cortisone" by Edward Pelikan, M.S., M.D., and Janet Wolter, M.D. A timely and adequate summary of the present status of these new therapeutic agents. *page 104*

SOUTHERN HOSPITALS

NOVEMBER, 1951—"With the Hospital Pharmacist" by Joe Vance. A summary of the Southeastern Society of Hospital Pharmacists mid-year program at the meeting in Memphis, Tenn. *page 57*

"Pharmaceutical Production and Supply During the Emergency Period," by Thomas Foster, Pharmacist Director, N.S.P.H.S. An exposition of the part the Public Health Service plays in helping the Drug and Cosmetic Section of the National Production Authority in solving the problems of production and distribution of chemicals and pharmaceuticals, and also, in allocating the supply of scarce raw materials. *page 59*

DECEMBER, 1951—"The Pharmacist and the Hospital Staff," by Gilberto Colino, C.Ph., Mercy Hospital, Charlotte, N.C. The author describes his experiences in opening a new hospital pharmacy in an old hospital. *page 61*

as the vice-president sees it

MRS. JANE ROGAN

Deaconess Evangelical Hospital
Detroit, Michigan

Until my miraculous election as vice-president by the members of the American Society of Hospital Pharmacists, I had been eager to accept any post of vice-president or vice-chairman or assistant something or other, for in the average organization the vice-president or other assistant officials, generally sit around and enjoy their prestige and do very little, other than only on such occasions as the absence or total disability of the president. However, soon after my installation I was notified of my placement on several committees and also given the opportunity to express my thoughts in our publication.

So pursuing my previous tactics, as vice-president I will attempt to transmit to the general membership as many of my tasks as possible. Let me assure you however, that it will not be done in a spirit of evasion but rather in the hope of obtaining greater co-operation and participation from our members.

When the chairmanship of the Committee on Membership and Organization was conferred upon me, serious consideration was given to planning a membership campaign and some research was committed on the development of a campaign to induce new members to join our organization.

To attempt to contact as many hospital pharmacists as possible a sub-committee of ASHP members was appointed, representing almost every state in the Union. These members were requested to personally contact non-member hospital pharmacists and indicate to them the advantages and need of joining their efforts with that of the American Society of Hospital Pharmacists.

The danger of a membership drive is the too numerous aquisition of a membership card holder or "joiner" who readily succumbs to the proffered blandishments and accepts the membership without further regard to the groups activities. It is my wish that we will not have any "inactive" members and it is my belief that a sound and active member can best be obtained only through the establishment of greater rapport in the Society. Amazing and profitable work has been done with the few members and low finances of the Society in the past few years. Members of the ASHP have as a satisfied group, always aimed at greater aid to their hospitals and to their profession. The small but active group, has done the major share of the work but have emanated the feeling that added help would be welcomed and appreciated. ASHP members attempt to improve themselves personally and their departments without thought of personal prestige; benefit to the organization being paramount in their aims and activities.

One of the most important and far reaching activities of the American Society of Hospital Pharmacists in conjunction with the Division of Hospital Pharmacy of the American Pharmaceutical Association and the American Society of Hospital Pharmacists has been the approval and acceptance of the Minimum Standards for Pharmacies in Hospitals. It is hoped that all members of the ASHP are fully cognizant of these Minimum Standards and remember that they are but minimum requirements and that each and every pharmacist should strive to render the greatest amount of service possible. Being aware of your own standards is not sufficient, you must also be able to integrate them with the institution with which you are affiliated and be able to influence others in similar positions. This can only be achieved by exceeding the present day goal for physical conditions of the pharmacy and the educational requirements of the pharmacists.

The necessity and value of Minimum Standards as well as the importance of the function of the pharmacy in the modern hospital is a well known and accepted fact to our members, however it is essential in order to attain the highest possible standards that the general public as well as members of the allied professions be fully aware of our activities and functions as hospital pharmacists. Popular opinion has become increasingly important in the modern world and leadership is dependant upon popular approval. Education has emerged and has resulted in diffusing all kinds of information and viewpoints, and it has heightened popular awareness of the variety of possible positions. It is necessary to inform others of our work and our desire to improve our services. Inauguration of such a program of public relations would produce many benefits, and also aid in attracting a greater number of qualified personnel into our profession.

ASHP PROJECTS

FROM THE COMMITTEE CHAIRMAN

SAINT LUKE'S HOSPITAL
OF THE METHODIST CHURCH
11311 SHAKER BOULEVARD
CLEVELAND 4, OHIO

Dear Hospital Pharmacist,

Your delegates to the Buffalo Convention have perhaps reported to you that Walter Frazier, President of the American Society of Hospital Pharmacists, formulated a new committee to interest all groups, local and regional, in starting a project on some phase of hospital pharmacy The project may be small or large, of general or local interest, of long or short duration.

The Committee wants you to submit a project or projects which your group would like to work on, and also submit subjects to the committee that you would like to have some one else use as a project.

We hope to be able during the year to publish in The Bulletin some progress notes of your work. When the finished report is sent in, a plan will be worked out so that the material will be available for the use of all members.

For instance, the Cleveland Society of Hospital Pharmacists has decided to work on a system, for the filing of pamphlets from the drug houses, that will be easy to use and maintain A numbering system devised and reported at the convention by Mrs. Isabel Stauffer for the Rexall Drug Library of Toronto will oe tried

We would like tohave one of your local members as your representative on our national committee to facilitate communication between the country as a whole and your group If your local chapter has not already taken action on this project, would you present this at the next regular meeting or to the executive committee and notify us immediately of the project selected or suggested

The President hopes that through these projects the individual members may realize that the strength and value of the national organization is but the sum of the efforts of the individual member

Sincerely,

Evlyn Gray Scott

Evlyn Gray Scott, Chairman
Special Projects Committee
American Society of Hospital Pharmacists

EGS:jp

Think of the accomplishments that can be made if each organized group successfully completes one of these projects.

INDIVIDUALS MAY ALSO PARTICIPATE, FOR EXAMPLE *Todd Tomihiro from San Jose Hospital in San Jose, California is working on a project for filing pharmaceutical literature other than the pamphlet type. He will attempt to devise a system of numbers that could be used for punched cards.*

SUGGESTED PROJECTS

- *A study of detergents suitable for pharmaceutical glassware.*
- *Cooperation with colleges of pharmacy to set up curricula in hospital pharmacy for undergraduates.*
- *Survey of hospital formularies.*
- *The wages of hospital pharmacists—what they are—what they should be.*
- *A handbook of toxicology for the hospital pharmacist (to include pesticides and newer household agents not usually included in such textbooks.)*
- *A study of suitable closures for different types of pharmaceutical products dispensed in the hospital pharmacy, including specifications, sources and cost.*
- *An ideal germicidal solution for thermometers —non-toxic, low cost, one which would not remove painted calibrations.*

PROGRESS REPORT OF COMMITTEE

AFFILIATED CHAPTER	PROJECT	COMMITTEE REPRESENTATIVE
Massachusetts Society	Potency and sterility of preparations	John Murphy
Akron Area Society	Help state complete the state-wide project	E. Drury (*temporary*)
Arizona Society	An educational project for ourselves	Rex West
Midwest Hospital Pharmacy Society	Control inventory for those who do not have a formulary	Wilma Moss
Greater New York Chapter	Storage of U.S.P. and N.F. preparations	Sr. M. Etheldreda
Cleveland Society	Filing system for medical brochures (Stauffer System)	Martin Albaugh
Memphis Society	Monthly Suggestion	Not selected
Puget Sound Area	Study of state regulations governing hospital pharmacy (Washington)	Not selected
Southeastern Society	1. History of Southeastern Society 2. Organizing State Societies of hospital pharmacy	Lillian Price
Wisconsin Society	Laison committee for more united work with Wisconsin Pharmaceutical Assn.	Sr. M. Blanche, O.S.F.
Philadelphia Society	No subject as yet	Herbert Flack Benjamin Wexlar Thelma Connolly

Further reports will be made in succeeding issues of THE BULLETIN.

A.S.H.P. AFFILIATES

Recent meetings of the ARIZONA SOCIETY OF HOSPITAL PHARMACISTS have been chiefly concerned with pharmacy consultants in the hospital. At the November 18 meeting at St. Mary's Hospital in Tucson, a discussion was held between Eli Schlossberg and David Axelrod, both pharmacy consultants, which concerned the duties of a pharmacy consultant to the hospital administrator and those concerned, in a hospital where no permanent pharmacist is in charge.

The pharmacy consultants were invited to attend the December 16 meeting held at St. Joseph Hospital in Phoenix. The entire meeting was devoted to the discussion of the duties and responsibilities of a pharmacy consultant. It was brought out in the discussion that the most important duties of the consultant were to see that proper drug labeling was being carried out, that drugs were properly stored, and that the dates on dated medications were properly watched and safeguarded.

The October meeting of the CLEVELAND SOCIETY OF HOSPITAL PHARMACISTS was held at St. Joseph's Hospital, Lorain, Ohio, with thirty-three members and guests present. Dr. Joseph De Nardi opened the meeting with a talk on "Toxic Manifestations of Beryllium Poisoning". After the business meeting was completed a tour of the pharmacy was made. Dr. Otto Glasser of the department of biophysics at the Cleveland Clinic spoke on "Isotopes in Medicine" at the November meeting held in the Clinic building.

Newly accepted members of the Cleveland Society are Jackie Young, Henry Beard, Frank Kucia, Mrs. Margueree Johnson, Murray Gray, and James Van Winkle.

Members of THE GREATER NEW YORK CHAPTER of the American Society of Hospital Pharmacists met November 21, 1951 at St. Catherine's Hospital in Brooklyn. The main topic discussed was a written policy for the hospital pharmacy. Sister Etheldreda read excerpts from a paper she had presented on this subject at the Ontario Convention. Each member was requested to bring a written policy for her individual pharmacy to the next meeting for discussion. There was also considerable discussion of the problems of narcotic prescriptions in the hospital.

Dr. Snively of the Mead-Johnson Co. medical department was the principal speaker at the November meeting of the HOSPITAL PHARMACISTS' ASSOCIATION OF GREATER ST. LOUIS. The meeting was held at St. Mary's Hospital in St. Louis on November 18. At that time plans were made for a dinner meeting in January to which the faculty and senior class of the St. Louis College of Pharmacy would be invited.

The December meeting was held at the Sheraton Hotel on December 18, 1951. Mr. Otto Wassam, of Winthrop-Stearn & Co. spoke on Telepake, Midalon, and Milibis, and then led discussions on Levophed and Pontocaine. A film portraying travel in Europe was also presented through the courtesy of one of the national airline companies.

At the dinner meeting in January, held at the Gatesworth Hotel, Dr. F. F. Yonkman, director of research for Ciba Pharmaceutical Products, Inc., was the guest speaker. He presented an illustrated lecture on "Sympathetic Nerve Blocking Drugs". Dean A. F. Schlichting of the St. Louis College of Pharmacy was introduced and thanked the group for the invitation extended to the faculty and senior students to attend this meeting.

The November and December meetings of the ILLINOIS CHAPTER of the American Society of Hospital Pharmacists were held at the Chicago Hospital Council. At the November meeting, Florence Hatter, Billings Hospital, Chicago, spoke on "A System of Narcotic Records", and Louis Gdalman, St. Luke's Hospital presented the subject, "A System of Departmental Records". "Recent Factors Affecting the Hospital Field" was presented to the group at their December meeting by James R. Gersonde, executive director of the Chicago Hospital Council.

The MARYLAND ASSOCIATION OF HOSPITAL PHARMACISTS sponsored a pharmacy section at the annual meeting of the Maryland-

Dr. Archambault, Miss Niemeyer and Dr. Scigliano participate in program.

District of Columbia-Delaware Hospital Association held at Hotel Statler in Washington on November 27. Dr. John A. Scigliano, chief of the Pharmaceutical Service at the U.S.P.H.S. Hospital in Baltimore and president of the Maryland Association was in charge of the meeting.

The following program was presented:

"A Complete Hospital System for the Control of Narcotics, Hypnotics and Other Drugs" by Dr. George F. Archambault, Senior Pharmacist, Chief, Pharmacy Branch, Division of Hospitals, U. S. Public Health Service.

"Standard for Compounding by the Hospital Pharmacists" by Dr. Samuel W. Goldstein, American Pharmaceutical Association.

"Progress Report of Hospital Pharmacy" by Miss Gloria Niemeyer, Assistant Director, Division of Hospital Pharmacy, American Pharmaceutical Association.

The FLORIDA SOCIETY OF HOSPITAL PHARMACISTS convened at the Fort Gatlin Hotel in Orlando on December 1 and 2 for its semi-annual meeting. Opening with a dinner meeting on Saturday evening, President Lewis Bevis welcomed the group and outlined the program for the year. Highlights of the meeting included plans for participation of hospital pharmacists in the Florida State Pharmaceutical Association with representation on the Executive Committee; furthering interest in hospital pharmacy at the University of Florida College of Pharmacy; participation in meetings of the Florida Hospital Association; publication of a quarterly bulletin for Florida hospital pharmacists; and plans for dividing the state into four working districts with a representative from each on the committees. A schedule for quarterly state meetings was worked out so that one meeting during the year will be held in each district.

Meeting through Sunday, the program included a panel discussion on subjects of current interest to hospital pharmacists and a talk on "Pharmaceutical Dispensing" by Dr. William J. Husa, Department of Pharmacy, University of Florida.

Hospital pharmacists from Connecticut, Rhode Island, and Maine were guests at the combination afternoon and evening meeting of the MASSACHUSETTS SOCIETY OF HOSPITAL PHARMACISTS held November 14 at the Hotel Sheraton in Worcester, Massachusetts. The business meeting was conducted in the afternoon and in the evening the members were guests of the Commercial Solvents Corporation. Speakers were Dr. Fred Schultz, Jr. and Dr. Harold J. Byrne, who spoke on Copenamine, Dextran and Dia-Discs.

The Massachusetts Society has recently started an employment service for hospital pharmacists with Edith Hill of New England Baptist Hospital in charge.

Members of the MICHIGAN SOCIETY OF HOSPITAL PHARMACISTS met at the N.W. Branch Grace Hospital, Detroit, on November 15, 1951. Dr. Andrew Wilson, staff member of the N.W. Branch Grace Hospital spoke on the subject, "Sabotaging Hypertension". He discussed physiology pertaining to hypertension, including various classifications of hypertension and discussed some of the drugs used in the treatment of this condition.

The topic "Phases of Bugs and Drugs" was presented by Dr. George Valley, chief bacteriologist of Bristol Laboratories. He discussed the various theories of activity of antibiotics. In his talk he stated that "Clinicians should ask the hospital pharmacist for description and explanation of drug activity".

The December meeting was held jointly with the Michigan Academy of Pharmacy on December 7th. The speakers were Dr. S. H. Fox and Dr. Frederick F. Yonkman.

Dr. Fox, who is technical director of the R. P. Scherer Corporation and a director of the Academy, talked on his recent trip to Europe and illustrated with colored slides.

Dr. Yonkman, former chairman of the Department of Pharmacology at the Medical College of Wayne University and now director of research for Ciba Pharmaceutical Company, spoke on the topic "From Test Tube to Bedside in this Modern Age". The talk emphasized the importance of minor observations which so often have led to major contributions in the medical sciences.

New members of the MIDWEST ASSOCIATION OF SISTER PHARMACISTS include Sister Marie, St. Joseph Hospital, Chicago, and

Sister M. Narcissa O.S.F., St. Francis Hospital, Evanston.

The November meeting of the group was held in Chicago at Columbus Hospital. The main topic of the meeting concerned the changes required in the Constitution and By-Laws of the Midwest Association of Sister Pharmacists to conform with the present Constitution of the American Society of Hospital Pharmacists. A resolution was passed to formulate an Invited Guest Member group which would include those Sisters who are not registered pharmacists but who are in charge of drug rooms in the smaller hospitals. Featured on the program was a paper written by Sister M. Cherubim, O.S.F. and Sister M. Theodora and presented by Sister M. Cherubim entitled "The Role of the Pharmacist with the Professionals and the Hospital Personnel."

Recently elected officers of THE ASSOCIATION OF THE HOSPITAL PHARMACISTS OF THE MIDWEST are: president, Sister Mary Raphael Hilger, St. Vincent Hospital, Sioux City, Iowa; vice-president, Phyllis Platz, University of Nebraska Dispensary, Lincoln, Nebraska; secretary, Sister Ruth Morris, Emmanuel Deaconess Hospital, Omaha; treasurer, Lois Stelzreis, Methodist Hospital, Omaha. Lillian Dorsey of Methodist Hospital in Omaha was appointed chairman of the program committee and Wilma Maus, Mercy Hospital, Council Bluffs, Iowa, heads the current literature reports committee.

At the December meeting of the Midwest Hospital Pharmacists, the members were privileged to hear an illustrated lecture on the current drugs in use which affect the sympathetic and parasympathetic systems presented by Anne Czerwinski, professor of pharmacology at Creighton University College of Pharmacy. The meeting was held at St. Catherine's Hospital in Omaha, and a tour of the newly remodeled pharmacy was made.

New officers of the NEW JERSEY SOCIETY OF HOSPITAL PHARMACISTS were installed December 6 at a dinner meeting held at the Robert Treat Hotel, Newark. Elected president is Rudy Wilhelm, St. Michael's Hospital, Newark; vice-president, Mrs. E. M. Carlin, Patterson General Hospital, Patterson; secretary, Charles Seal, Muhlenberg Hospital, Plainfield; and treasurer, Bertram Jones, Essex County Hospital, Cedar Grove.

Featured at the November meeting of the New Jersey Society, held at St. Michael's Hospital, Newark, was a movie furnishd by Abbott, Inc. which portrayed the administration of Sodium Pentothal in obstetrics. Following the movie a plan to conduct a Joint Survey of the Practice of Hospital Pharmacy in both New York and New Jersey was discussed. It was voted that the New Jersey Society associate with the Advisory Committee of the New York Society of Hospital Pharmacists in this project. The membership committee reported on the admission of two new members, Marjorie O'Boyle of St. Michael's Hospital, Newark, and Oscar Stevens of the Newark City Dispensary.

Members of THE NORTHERN CALIFORNIA SOCIETY OF HOSPITAL PHARMACISTS attended a joint meeting with the Northern California Chapter of the American Pharmaceutical Association November 12 in San Francisco. Over 225 people were in attendance to hear talks by Don E. Francke, president, and Robert P. Fischelis, secretary of the American Pharmaceutical Association.

THE OKLAHOMA SOCIETY OF HOSPITAL PHARMACISTS held its November meeting in conjunction with the Oklahoma State Hospital Association at their annual convention in Tulsa, Oklahoma. Mr. Harry Smith, president-elect of the Oklahoma State Hospital Association presented a talk on "The Value of a Pharmacy in a Hospital". Dr. Charles Schwartz, professor of pharmaceutical chemistry at Southwestern State College spoke on the "Duties and Privileges of a Hospital Pharmacist".

The December meeting was held in the College of Pharmacy of the University of Oklahoma with forty pharmacists present. Dean Ralph Clark of the college presented an excellent program and each member of the faculty gave an outline of his courses taught to the students in the College of Pharmacy, emphasizing the importance of the principles of a good foundation necessary for anyone wishing to enter the profession of pharmacy. Following the program there was a tour of the College of Pharmacy and an informal luncheon.

THE HOSPITAL PHARMACISTS OF THE PUGET SOUND AREA met November 13 in Bagley Hall on the campus of the University of Washington, Seattle. The seniors in the College of Pharmacy of the University of Washington were invited as guests of the hospital pharmacists to view a new color film "Tryptar" presented by a representative of Armour Laboratories. On November 16, several members of the group attended an address given to the students of the college by Don E. Francke, president of the American Pharmaceutical Association.

the Veterans Administration

PHARMACIST

Edited by EDDIE WOLFE, *Mt. Alto Veterans Hospital, Washington, D.C.*

MEET A VETERANS ADMINISTRATION PHARMACIST

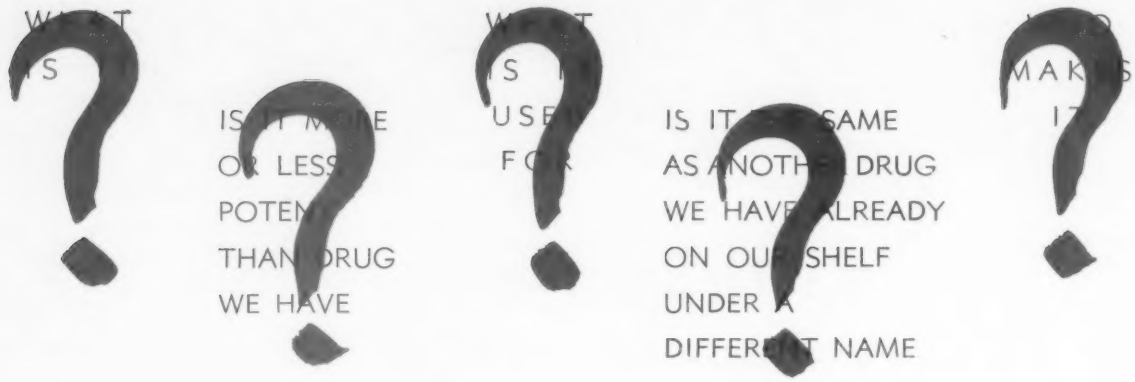
Mr. Norman E. Hammelman is chief of the pharmacy service at the Veterans Administration Hospital at Jefferson Barracks, Mo. He received his B.S. degree from the St. Louis College of Pharmacy in 1943, after which he entered the Army until discharged in 1946. Mr. Hammelman accepted a position as chief pharmacist at the Barnes Hospital in St. Louis. In 1947 he was appointed as chief pharmacist at Jefferson Barracks.

Mr. Hammelman is past president of the Hospital Pharmacists Association of Greater St. Louis and also past president of the Alumni Associaiton of the St. Louis College of Pharmacy. He is an active member of the American Pharmaceutical Association, American Society of Hospital Pharmacists, the Hospital Pharmacists Association of Greater St. Louis and has attended five Institutes on Hospital Pharmacy.

Charles U. Erdeljon is chief of the Veterans Administration Hospital at Martinsburg, West Virginia. He received his degree from the Cincinnati College of Pharmacy in 1942. He served in the Army from 1942 to 1945 serving twenty-six months overseas in the European Theater of Operations. Mr. Erdeljon entered the Veterans Administration in 1946 as the chief pharmacist at the Cincinnati Regional Office, remaining there until 1947 when he was promoted to chief of the Pharmacy Division of the former Branch No. 6. Columbus, Ohio. In 1949, when the Branch Offices were disbanded, he returned to the field as chief of pharmacy service, Nichols, V.A. Hospital, Louisville, Kentucky. Shortly thereafter, Mr. Erdeljon was transferred to his present position at the Martinsburg, West Virginia Hospital.

Mr. Benjamin Teplitsky is chief pharmacist at the V.A. Hospital, Albany, New York. He received his B.S. in Chemistry and Pharmacy at the Brooklyn College, Brooklyn, New York, after which he entered the Army in 1941. Various stations included overseas duties at Trinidad, Italy and French Morocco as a Lieutenant in the Medical Corps. Mr. Teplitsky was discharged in 1946 and immediately was appointed as pharmacist at the V.A. Hospital in Bronx, New York. In 1948 he accepted a position as pharmacist at the Regional Office, V.A., Brooklyn, New York and stayed there until 1951 when he received his present position in Albany.

Mr. Teplitsky is a member of the American Pharmaceutical Association, the American Society of Hospital Pharmacists and a member of the Executive Board Committee of Brooklyn College of Pharmacy Alumni Association.



"*Facts and Comparisons*

has the answers to these and to other questions that daily confront the **Hospital Pharmacist** in large or in a small institution." [1.]

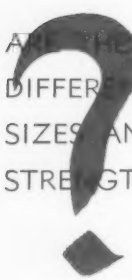
"We find Facts and Comparisons such a **helpful** and **frequently used reference,** that we keep it in a drawer of the prescription counter and not in the library with our other references." [1.]

"It is a **unique, loose-leaf reference book** which is **conveniently arranged** and provides a **compact up-to-date, easy-to-use source** of information on drugs." [1.]

1. Sister Mary Berenice S.S.M., Book Review, This Bulletin, Sept-Oct. 1951. Pg. 377-378.

Facts and Comparisons consists of:

1. A loose-leaf book listing over 3500 specialties in about 350 groups, according to their nature or usage and in table form (as shown in the excerpts below), much as the baseball averages or stock market reports in the daily newspapers.
2. Monthly mailings of completely revised pages, which replace old pages, thereby eliminating supplemental booklets or waiting for new editions to be printed.



INJECTABLE ANDROGENS

Product and Mfg.	Sizes	Cost* Index
Testosterone Propionate, the suggested weekly dose of which is 20 to 75 Mg. is available in oil as:		
Testosterone Propionate (Abbott)	BDEG	0.5- 4.6
Perandren (Ciba)	ABCDEG	0.6- 7.1
Neo-Hombreol (Organon)	BCDEG	0.6- 5.9
Testosterone Propionate (P-D)	EG	0.5- 1.9
Testosterone Propionate (White)	ABCDEG	0.6- 7.1
Oreton (Schering)	ABDEGJ	0.6- 7.1
Testosterone Propionate (United Lab)	EG	0.6- 2.1
Synerone (Pitman-Moore)	E	0.6- 2.2

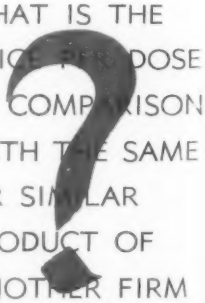
Table of Sizes

Contain per cc.	1 cc.	5 cc.	10 cc.
5 Mg.	A		
10 Mg.	B		C
25 Mg.	D		E
50 Mg.			G
100 Mg.	H	I	J

MULTI-VITAMIN CAPSULES AND TABLETS

Contains per Capsule or Tablet.

Product and Mfg	B-1	B-2	Nia-cin.	PA.	B-6	C	A	D	E	Cost* Index
Bioformula (Walker)	25.0	10.0	150			150	25000	2500		14.4
Stuart Therapeutic	20.0	10.0	150			150	25000	1000		11.6
Theracebrin (Lilly)	15.0	10.0	150	20	3.0	150	25000	1500	25	17.5
Pluraxin (Winthrop)	15.0	10.0	150	10	2.0	150	25000	1000		14.3
Therapeutic Formula E (IVC)	10.0	10.0	150			150	25000	1000	10	11.8
Thera-Vita (Warner)	10.0	10.0	100	10	1.0	150	12500	1250		15.0
Mulsavite (Sharp & Dohme)	5.0	10.0	50	10	1.0	150	20000	2000	10	15.4
Theragran (Squibb)										12.6
Therapeutic Formula (P-D)	10.0	5.0	150			150	25000	1000		12.6
Opti-Kaps (Abbott)										12.6
Magnicaps (Plessner)										11.0
Therafortis (United Lab.)										10.2



Sample pages, table of contents, reprint of review and additional information on request.

FACTS AND COMPARISONS INC.
3137 S. GRAND BLVD. ST. LOUIS 18, MO.

NEWS ITEMS

Policy Committee Meets

The Policy Committee of the Division of Hospital Pharmacy met at the Headquarters building of the American Pharmaceutical Association on Saturday, November 24, 1951. Members present were: Walter Frazier, Don E. Francke, I. Thomas Reamer and Herbert L. Flack, representing the American Society of Hospital Pharmacists; Dr. Robert P. Fischelis, representing the American Pharmaceutical Association; (second representative of the American Pharmaceutical Association, Dr. Glenn L. Jenkins was unable to be present at the meeting); Dr. Robert R. Cadmus representing the American Hospital Association; and Sister Mary Adelaide, representing the Catholic hospital Association. Miss Gloria Niemeyer, assistant director of the Division of Hospital Pharmacy was also present by invitation. The meeting was opened at 10:00 A.M. by Chairman Fischelis.

The following is a resume' of the policies discussed and the action taken:

It was moved, seconded, and carried that the American Council on Pharmaceutical Education be requested to review the Minimum Standards for Pharmacy Internships in Hospitals with a view toward establishing an accreditation program for academic and non-academic internships.

It was moved, seconded, and carried that the Society's Committee on Education be asked to take the initiative in developing a series of lectures on prescription writing and related topics, such a series of lectures to be given as a part of the hospital's education program through the Intern Committee or the Pharmacy and Therapeutics Committee, or both.

It was moved, seconded, and carried that Miss Gloria Niemeyer be appointed a member of the Institute Planning Committee, and, in addition, that Miss Niemeyer be appointed as official representative of the American Pharmaceutical Association and the American Society of Hospital Pharmacists at the Institute on Hospital Pharmacy.

It was moved, seconded, and carried that the Division of Hospital Pharmacy cooperate with the Hospital Facilities Division of the Public Health Service in the development of a Pharmacy section of a Model Hospital Licensing Law.

It was moved, seconded and carried that the Division of Hospital Pharmacy and the American Hospital Association explore the possibility of jointly preparing a Manual on Hospital Pharmacy Operation.

It was moved, seconded, and carried that the Policy Committee confirms the policy of the Publications Committee of THE BULLETIN of not accepting advertisements for contraceptive products. It was understood that this policy does not apply to companies which might manufacture such products, but advertise other pharmaceuticals.

It was moved, seconded, and carried that the Policy Committee give further consideration to the general problem of surveys of function and extent of pharmacy service in hospitals, with the view of integrating such surveys and studies with the developing accreditation program now being established for hospitals in general. This motion was made after the Policy Committee had discussed at great detail the advisability of making a combined survey on the Quality and Cost of Pharmacy Service in Hospitals and an Evaluation of the Minimum Standards.

It was moved, seconded, and carried that The Division of Hospital Pharmacy compile a suitable series of reprints on hospital pharmacy subjects and that these reprints be sent to instructors of each of the courses on hospital administration for comment as to their usefulness to students in hospital administration.

In addition, a statement of general policy was formulated which included the following points:

(1) that the Policy Committee recognizes that its activities both for health service in general and for pharmacy in particular require deliberate and considered long range planning, and possibly guidance from specialists in technics of planning;

(2) the Policy Committee believes that the time is not propitious for surveys on the Quality and Cost of Pharmacy Service in Hospitals;

(3) the Policy Committee believes that the Hospital Pharmacy Survey to be conducted in cooperation with the Public Health Service should be the first step in the development of information on current hospital pharmacy practice;

(4) immediate attention should be given to impressing upon the national hospital accrediting agency the importance of pharmacy to the patient in all hospitals; and, incidentally, to the facilities now available for improving hospital pharmacy services, education of hospital pharmacists, and the development of a sound hospital pharmacy program, all of which are available through the Division of Hospital Pharmacy of the American Pharmaceutical Association and the American Society of Hospital Pharmacists;

(5) that one of the immediate steps in the de-

velopment of the Minimum Standards program should be a pilot survey conducted by the Society's Committee on Minimum Standards with the help of the Policy Committee on a sufficient number of properly diversified hospitals to determine the adequacy of these standards.

1952 Institute Scheduled for Toronto

The Ninth Institute on Hospital Pharmacy sponsored cooperatively by the American Hospital Association, the American Pharmaceutical Association and the American Society of Hospital Pharmacists will be held in Toronto, Canada June 23-27. This year the Canadian Society of Hospital Pharmacists and the Canadian Hospital Council joins in the sponsorship of the 1952 refresher program. Meeting rooms and living accommodations will be provided on the campus of the University of Toronto.

The Institute Planning Committee met at the Royal York Hotel in Toronto on January 12 to draw up the detailed program. Meeting under the chairmanship of ASHP President Walter W. Frazier, the committee outlined a series of lectures, demonstrations, and panel discussions for the five day meeting including three evening sessions. Members of the Planning Committee, in addition to President Frazier, included Mr. Leonard Goudy of the American Hospital Association, and Dr. L. O. Bradley of the Canadian Hospital Council; the Canadian Society of Hospital Pharmacists was represented by Mr. F. D. Buck, Miss Mary Asquith, and Miss Irene Olynyk; ASHP members of the Committee included Mr. Allen V. R. Beck, Miss Gloria Niemeyer, and Don E. Francke; while Dr. Robert P. Fischelis represented the American Pharmaceutical Association. Details of the program will be published in the March-April issue of THE BULLETIN.

A.S.H.P. Election Results

Grover C. Bowles, chief pharmacist at Strong Memorial Hospital in Rochester, N. Y., has been elected president of the American Society of Hospital Pharmacists for the 1952-1953 term. Mr. Bowles has played an important role in the national organization and has been a member of the Executive Committee for the past several years. He has served as vice-president and chairman of the Committee on Membership and Organization and is now chairman of the Committee on Minimum Standards.

The vice-president-elect, Mr. George L. Phillips, assistant chief pharmacist at University Hospital, Ann Arbor, Mich., has been active in the Michigan Chapter and has served on national committees. He has also been a contributing editor of THE BULLETIN for several years.

Sister Mary Florentine, treasurer-elect, is chief pharmacist at Mt. Carmel Hospital in Columbus, Ohio. She has been active in the Ohio Society and has participated in the national meetings and institutes.

The secretary of the Society is nominated by the Executive Committee and elected annually by the ASHP House of Delegates.

Announcement of the election results was made by a committee appointed by President Frazier. Included on the committee were John M. Gooch, Pharmacy Division, Veterans Administration, Washington, D.C.; Alex Milne, Hospital Facilities Division, Public Health Service, Washington, D.C.; I. Thomas Reamer, Duke Hospital, Durham, N. C.; and Gloria Niemeyer, secretary of the American Society of Hospital Pharmacists.

The new officers will be installed at the annual convention to be held in Philadelphia during the week of August 17, 1952. Present officers of the ASHP who will continue to function until the 1952 convention are: president, Walter Frazier, Springfield, O.; vice-president, Jane Rogan, Detroit, Mich.; secretary, Gloria Niemeyer, Washington, D. C.; and treasurer, Sister Mary Raphael, Sioux City, Ia.

Request for Information on Pharmacy-Central Supply Combination

The ASHP Committee to study the feasibility and desirability to combine Pharmacy and Central Supply operations in hospitals requests information from the members of the Society as to the present location of such combinations. If you have such a combination, have definite plans for one in the future, or know of other hospitals which do have, will you please notify Mr. Herbert L. Flack, Chief Pharmacist, Jefferson Medical College Hospital, Philadelphia, Pa. Mr. Flack is the Chairman of the Committee studying this problem.

A.Ph.A. Election Results

The newly elected officers of the American Pharmaceutical Association who will be installed at the close of the annual convention to be held in Philadelphia during the week of August 17 are: *President-Elect,* R. Q. Richards, Fort Myers, Florida; *First Vice-President-Elect,* Tom D. Rowe, Ann Arbor, Michigan; *Second Vice-President-Elect,* Charles F. Lanwermeyer, Waukegan, Illinois.

Members-Elect of the Council for a term of three years are: Walter M. Chase, Detroit, Michigan; Henry H. Gregg, Minneapolis, Minnesota and George A. Moulton, Peterborough, New Hampshire.

Fischelis to Receive Lascoff Award

Dr. Robert P. Fischelis, Secretary of the American Pharmaceutical Association has been named recipient of the 1952 Lascoff Award given annually by the American College of Apothecaries for outstanding contributions to the profession of pharmacy. Dr. Fischelis will be presented the award at the annual meeting of the American College of Apothecaries which will be held in connection with the Centennial Celebration of the American Pharmaceutical Association to be held in Philadelphia this year.

A.A.A.S. Meeting

The annual meeting of the American Association for the Advancement of Science was held in Philadelphia, December 26-30, 1951. Before the close of the meetings of the Pharmacy Subsection which were held Thursday, Friday, and Saturday, it was announced that the ASHP had been accepted by the A.A.A.S. Council as an affiliated organization. Following this announcement, Dr. Jenkins called a meeting of the hospital pharmacists to formulate plans for future meetings.

Officers of the subsection on Pharmacy are: chairman, Dr. Glenn L. Jenkins, Purdue University School of Pharmacy; local secretary, Dr. Albert M. Mattocks, McNeil Laboratories. Presiding officers at the several meetings were: Dr. Glenn L. Jenkins, Dr. Rudolph H. Blythe, Research Division, Smith, Kline & French Laboratories; Dr. Justin L. Powers, American Pharmaceutical Association; Dr. George F. Archambault, chief of Pharmacy Service, Division of Hospitals, U.S.P. H.S.; Mr. Herbert L. Flack, Jefferson Medical College Hospital and Mr. Bernard E. Conley, American Medical Association.

The meetings were attended by between 30 to 50 persons. The first three sessions involved presentations from the pharmaceutical manufacturers and schools of pharmacy, while the Friday afternoon and Saturday morning sessions were specifically concerned with problems of immediate concern to hospital pharmacists.

A paper was presented by Mr. Herbert Flack for Sister Mary John, Mercy Hospital, Toledo on the "Germicidal Value and Use of *Para*-Chloro-*Meta*-Xylenol". Mr. Arthur J. McBay, Massachusetts College of Pharmacy, discussed "Simplified *p*H Approximations". Mr. Robert Bogash, Memorial Hospital, Wilmington, Del., presented basic studies with "Sodium Cellulose Sulfate——A New Media for Barium Sulfate". Prof. Mitchell J. Stoklosa of Massachusetts College of Pharmacy, in collaboration with Mr. John Murphy of the Massachusetts General Hospital, presented the results of their studies on the preparation of injectible solutions of thermolabile drugs,

and distributed formulas for many such preparations. Mr. Thomas A. Manzelli, Jefferson Medical College Hospital, in collaboration with Mr. Herbert Flack, gave the history of ion exchange products and plans for "Preparation of a Mixed Bed Deionizer for the Hospital Pharmacy." Dr. Arthur Purdum, Johns Hopkins Hospital, was moderator at a panel discussion in which Dr. George Archambault, Prof. Stoklosa, and Mr. Flack participated, each person presenting phases of research studies that should be accomplished.

Dr. John A. Scigliano, in cooperation with other members of the Public Health Service Hospital in Baltimore, presented a review of "Fungicidal Test Methods," which developed from their interest in a new fungicidal preparation. Again from the Public Health Service, Mr. Richard Sherwood, in cooperation with Mr. Robert Capehart, both of the Perry Point Supply Depot, Md., offered a procedure for "The Preparation of Wine as a Vehicle for Thiamin Hydrochloride." Mr. Frank J. Gregorek, Johns Hopkins Hospital, Baltimore offered descriptive material and presented a "Comparative Evaluation of Water Stills for Use in Hospital Pharmacies." This presentation probably provoked the greatest discussion of all papers presented. Saturday afternoon, Mr. Bernard E. Conley of the American Medical Association was moderator at an afternoon-long panel discussion, "Newer Toxicants of Medical, Economic, and Pharmaceutical Interest."

The Philadelphia Hospital Pharmacists' Association played host to visiting hospital pharmacists and distinguished guests by providing two luncheon sessions and an evening dinner meeting.

Beck Chairman

A.S.H.P. Program Committee

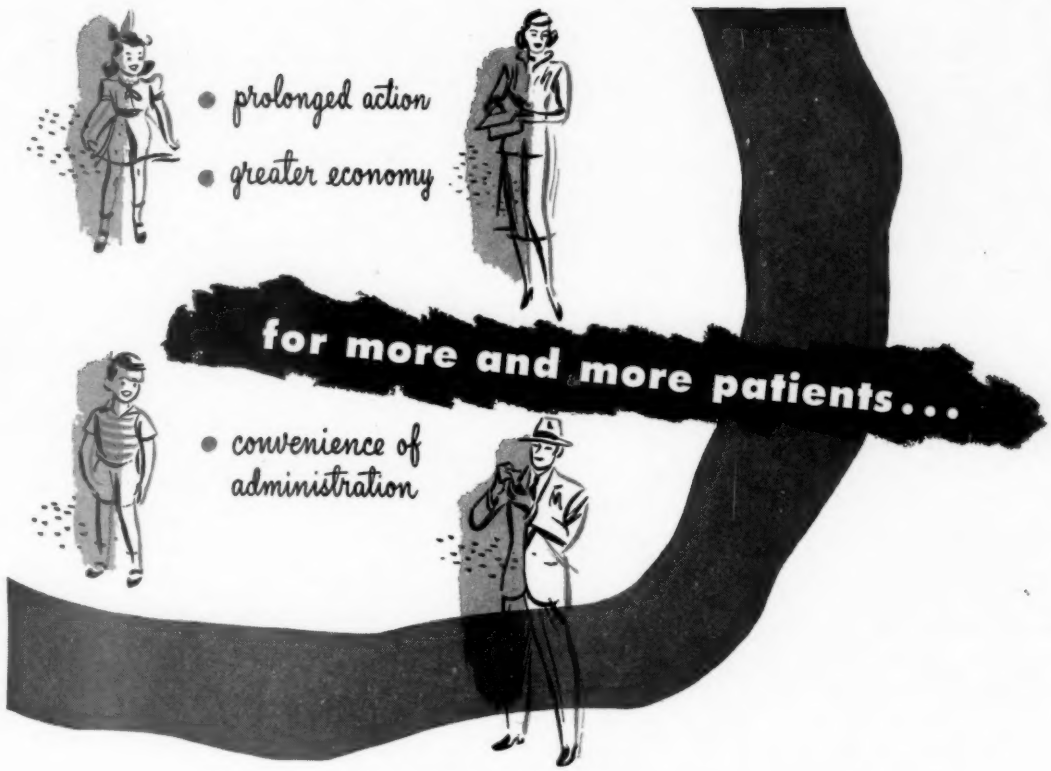
Allen V. R. Beck has been selected by President Frazier to head the important ASHP Program Committee. Mr. Beck replaces Mr. Norman Baker who recently resigned as chairman of the committee because of increased responsibilities at his hospital. Mr. Beck will be in charge of plans for the Decennial Celebration of the ASHP which will be held in Philadelphia during the week of August 17th. in connection with the Centennial Convention of the A.Ph.A.

Godley Appointed to Editorial Staff

Leo F. Godley has been appointed as a member of The Bulletin editorial staff for 1952. Mr. Godley who is now chief pharmacist at Bronson Methodist Hospital in Kalamazoo, Michigan, is a graduate of the University of South Carolina School of Pharmacy. He has also received a Master of Science degree in hospital pharmacy from Western Reserve University. Mr. Godley has had broad experience in the field of hospital pharmacy, having served on the pharmacy staff at University Hospitals, Cleveland, Columbia Hospital, South Carolina, and at New York University. Mr. Godley has had considerable editorial experience, having served on The Bulletin staff for three years beginning in 1947, and he has also been editor of the section on hospital pharmacy which appeared in the *Journal* of the American Pharmaceutical Association. This year, Mr. Godley will edit the section "Therapeutic Trends" which has been written since 1945 by Miss Gloria Niemeyer.

American College Apothecaries Holds Seaboard Meeting

Approximately 200 members and guests of the American College of Apothecaries assembled in Atlantic City, January 28-29 for a highly successful two day program inaugurating the first Eastern Seaboard meeting. Below is a view of the banquet at which A.Ph.A. Treasurer, Dr. Hugo Schaefer, served as toastmaster.



ACTHAR* *Gel*

IS LONG-ACTING

ACTHAR *Gel*—the only repository ACTH preparation—holds the promise of a sales potential comparable to that of long-acting insulin and repository penicillin preparations. Only a single daily injection is required in many cases, which means economy of therapy and marked convenience of administration.

ACTHAR *Gel* is backed by an outstanding advertising campaign to physicians everywhere. Make sure your stocks are adequate for the initial and the continued demand for ACTHAR *Gel*. ***Supplied:*** 20 I.U. (mg.) and 40 I.U. (mg.) per cc. in 5 cc. vials.

*THE ARMOUR LABORATORIES BRAND OF ADRENOCORTICOTROPIC HORMONE (A.C.T.H.)

—world-wide dependability—

THE ARMOUR LABORATORIES

CHICAGO 11, ILLINOIS

PHYSIOLOGIC THERAPEUTICS THROUGH BIORESEARCH

NEW MEMBERS

JANUARY 1, 1952

ALABAMA

Woodward, Jack A., 1402 York St., Sheffield

CALIFORNIA

Melton, Curtis, 1319 E. 142nd, Los Angeles

FLORIDA

Beverly, Clarence E., Florida A. & M. College Hospital, Tallahassee

GEORGIA

Harrell, Charles T., 1014 Crescent Ave., N.E., Atlanta (A)

ILLINOIS

Bradley, Louis F. Jr., 509 Central Ave., Wilmette (A)
Edsall, Erenesto M., 1016 Richmond St., Joliet
Sister M. Therese Bleuel, St. Francis Hospital, Peoria

KENTUCKY

Blasi, Eugene J. Sr., R.R. No. 1, Box 488-A, Louisville

MASSACHUSETTS

Swartz, Belle E., 3 Wyman St., West Medford

MICHIGAN

Chatfield, Frank A., 2748 Chadwick Dr., Pontiac (A)
McCarty, Elizabeth G., 3306 Harold St., Saginaw

MINNESOTA

Young, Clift H., 1111 E. 11th St., Duluth

NEW YORK

Solovay, Jacob, 3004 Bedford Ave., Brooklyn

OHIO

Best, John A., 15 Thornton Ave., Youngstown
Blumer, Dorothy C., 443 W. Evergreen, Youngstown
Greene, Joseph A., 5435 Southern Blvd., Youngstown
Page, Roland D., 2630 Payne Ave., Cleveland (A)
Sister Mary Juventia Polanowski, 12300 McCracken Blvd., Garfield Heights

OKLAHOMA

Davis, Joe R., 3929 N. W. 23rd St., Oklahoma City

PENNSYLVANIA

Zeldis, William, Jefferson Medical College Hospital, Philadelphia (A)

SOUTH CAROLINA

Massetti, Dominic, 2921 Kennedy St., Columbia

WISCONSIN

Olszewski, Dell A., 323 So. 80th St., Milwaukee

CANADA

Sister M. Rose-Agnes, 116 Coburg St., Saint John, N. B.

The most widely used and the best of the broad spectrum antibiotics ***is . . .***

aureomycin

LEDERLE

In the private rooms and on the wards, in the outpatient clinics and in the operating rooms, in the obstetric pavilion and the pediatric wing, aureomycin is recognized as the broad spectrum antibiotic of choice—and with good reason.

Aureomycin published reports exceed 4,000 in number.

Aureomycin is readily absorbed when given by mouth, but may be given intravenously in an emergency. It is also highly effective when used locally.

Aureomycin diffuses rapidly into all the tissues and fluids of the body and through the placenta into the fetal circulation.

Aureomycin appears promptly in the urine and, during administration, is maintained therein at high concentration; and may be detected in the urine as long as 55 hours after a single dose.

Aureomycin persists in the blood stream for as long as 12 hours following dosage of 5 mg. to 10 mg. per kilo at 6-hour intervals.

Aureomycin frequently succeeds when all other chemotherapeutic agents fail.

Aureomycin is effective against a wide range of bacterial (Gram-negative and Gram-positive), rickettsial, large viral and unidentified invaders.

Capsules: 50 mg.—Vials of 25 and 100.
100 mg.—Vials of 25 and bottles of 100.
250 mg.—Vials of 16 and bottles of 100.
Intravenous: Vials of 100 mg. and 500 mg.
Nasal: Vials of 10 mg. with 10 cc. vial diluent.
Ointment: Tubes of ½ ounce and 1 ounce.
Ointment (Ophthalmic): Six tubes of ⅛ ounce each.
Ophthalmic Solution: Vials of 25 mg.; solution prepared by adding 5 cc. distilled water.
Otic: Vials of 50 mg. with 10 cc. vial diluent.
Soluble Tablets: 50 mg.—Tubes of 40 and bottles of 100.
SPERSOIDS®: Jars of 12 doses and 25 doses.
Surgical Powder: Vials of 5 Gm.
PHARYNGETS®: 15 mg.—Boxes of 10.
Troches: 15 mg.—Bottles of 25 and 250.
Vaginal Powder: Vials of 5 Gm.
Vaginal Suppositories: Vials of 10 mg. with 10 cc. vial diluent.

Maintain the hospital pharmacy stocks of aureomycin!

®REG. U. S. PAT. OFF.

LEDERLE LABORATORIES DIVISION

AMERICAN Cyanamid COMPANY

30 ROCKEFELLER PLAZA, NEW YORK 20, N.Y.

POSITIONS IN HOSPITAL PHARMACY

POSITIONS OPEN

PHARMACIST-TEACHER. Eastern University hospital (400 bed) desires hospital pharmacist with M.S. or B.S. and experience in manufacturing to develop manufacturing program, assist in dispensary, and serve part-time on school pharmacy staff. Development of graduate work in hospital pharmacy a future program. Address inquiries to Division of Hospital Pharmacy, 2215 Constitution Avenue, N. W., Washington, D. C. (PO-2)

ASSISTANT PHARMACIST at 460 bed institution, located in suburban area, two weeks vacation, pension plan, fringe benefits, 45 hour week, salary commensurate with person's ability and experience. Address inquiries to Director of Personnel and Public Relations (David Babnew, Jr.), The Reading Hospital, West Reading, Pa.

ILLINOIS—Opening for three registered pharmacists with in-patient and outpatient dispensing experience. Knowledge of typing helpful. For further information write to the Division of Hospital Pharmacy, 2215 Constitution Avenue, N. W., Washington 7, D. C. (PO-1)

SALES TRAINING MANAGER. To train and supervise sales education program for pharmaceutical sales representatives. Desire applicant with pharmacy background and experience in teaching. Commercial experience in sales education desirable. Write directly to Lakeside Laboratories, Inc., Milwaukee 1, Wisconsin.

The following openings in hospital pharmacy appeared in current issues of hospital publications. Anyone interested in the positions should write directly in the Agency indicated. A fee is charged when positions are secured through the services of a personnel agency.

PHARMACIST—(a) Modern, 200-bed hospital; Florida resort city; open. (b) Large Texas teaching hospital; educational center; $3600 up. (c) 100-bed Illinois hospital, vicinity state capital; $4800. (d) New 200-bed Virginia hospital; $5400. Woodward Medical Personnel Bureau, 185 N. Wabash Ave., Chicago, Ill.

PHARMACISTS—(a) Administrative ability and hospital experience required; voluntary general hospital currently under construction; 400 beds; university town, South. Hl-11 (b) Assistant pharmacist; one of leading hospitals, Chicago area. (c) Large general hospital; university city outside United States; unusual opportunity. (d) Chief, 300-bed hospital; university town, midwest. MH12-12. The Medical Bureau, Palmolive Bldg., Chicago, Ill.

PHARMACISTS—(a) Chief; 250-bed modern hospital. (b) Assistant; large hospital Southwest; will consider recent graduate; 40 h.w.; salary open. Medical Personnel Exchange, 4707 Springfield Ave., Philadelphia 43, Pa.

POSITIONS WANTED

REGISTERED PHARMACIST with B.Sc degree desires position in hospital pharmacy preferably in Pa., N. J., or Del. area. Presently employed in retail pharmacy. For further information write to the Division of Hospital Pharmacy, 2215 Constitution Avenue, N. W., Washington 7, D. C. (PW-1)

REGISTERED PHARMACIST desires position in West or Southwest. B.S. degree University of W. Va. (1949) and three years' experience in hospital pharmacy. For further information write to the Division of Hospital Pharmacy, 2215 Constitution Avenue, N. W., Washington 7, D. C. (PW-2)

The Division of Hospital Pharmacy of the American Pharmaceutical Association in cooperation with THE BULLETIN maintains a placement service for hospital pharmacist. Anyone interested in availing themselves of this service may write to the Division giving pertinent information in regard to education and experience. A notice will be placed in THE BULLETIN on request. Adequate information about the person's qualifications as well as the type and size of institution in which he wishes to work, location, etc., is essential.

The service does not undertake to recommend applicants, but aims to serve as a clearinghouse for hospital pharmacists interested in positions and for hospitals interested in employing a pharmacist. Individuals will be notified by letter of openings which they may be qualified to fill. Requests for positions are kept on an active file until the Division is notified that the person has accepted a position or is no longer interested.

There is no charge for this service. All communications should be addressed to The Division of Hospital Pharmacy, American Pharmaceutical Association, 2215 Constitution Ave., N. W., Washington, D. C.